

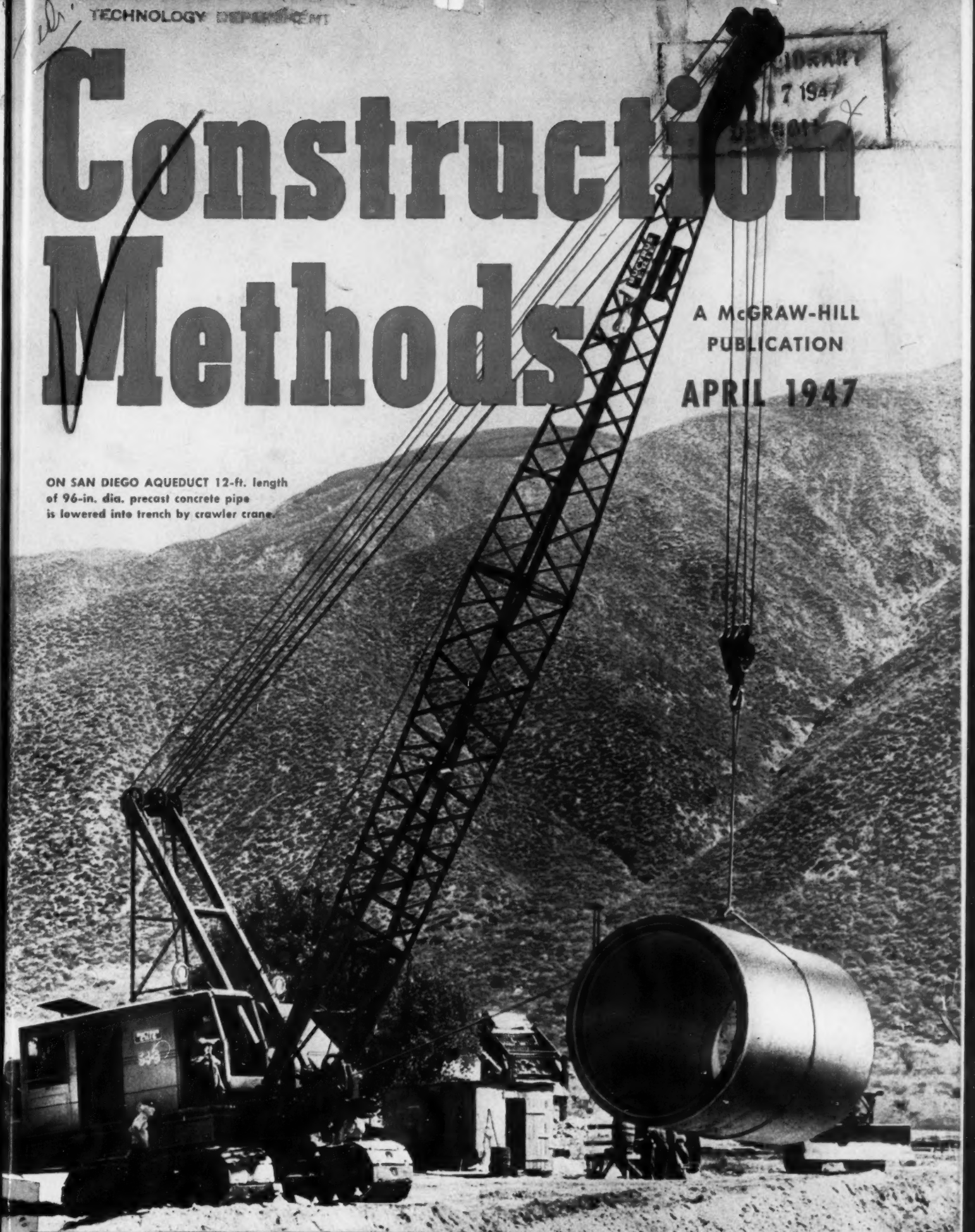
TECHNOLOGY DEPARTMENT

Construction Methods

A MCGRAW-HILL
PUBLICATION

APRIL 1947

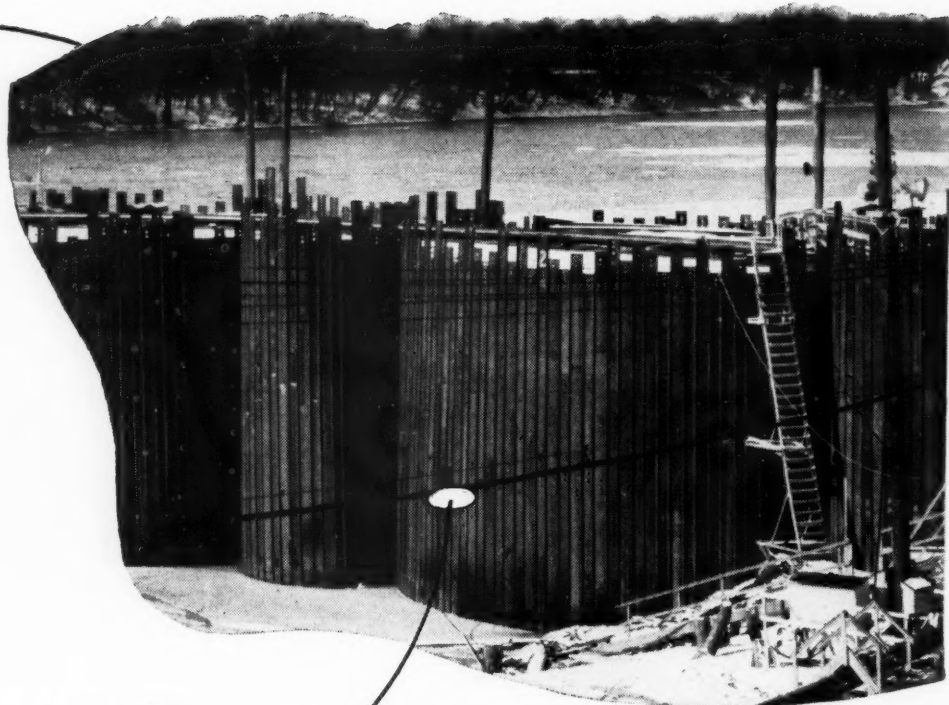
ON SAN DIEGO AQUEDUCT 12-ft. length
of 96-in. dia. precast concrete pipe
is lowered into trench by crawler crane.



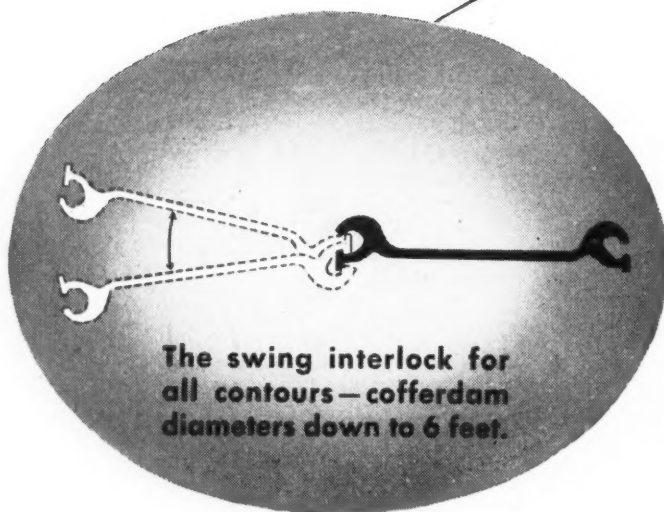
Concrete for Dam Mixed in Transit • Cold Weather Concreting on Silo Job • Placing
Large Concrete Pipe for San Diego Aqueduct • River Channel Shifted for Railroad
Relocation • Building Moved by Truck Winches



Inland Sheet Piling



FOR CONTOURS



Inland Sheet Piling, rolled with an interlocking grip, permits easy driving. It is designed for irregular line driving that will provide a watertight wall under pressure. When space and material are at a premium, Inland Sheet Piling will conform to the most intricate layout contours.

Available in straight and arch web sections for practically all applications, Inland Sheet Piling is rolled from special analysis, corrosion resistant steel to provide extreme toughness and tensile strength... "fills the bill" in spite of the most adverse soil conditions.

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APRIL 1947 Volume 29 • Number 4

CUTS AND FILLS

THE CONSTRUCTION BATTLE of the Century—The Tiff of the Tunneling Titans—will take place in the High Sierras of California. There three big contractors—Utah, Morrison-Knudsen and Walsh—combined to take the new 42,000-ft. Pacific Gas & Electric hydro tunnel. Normal procedure in setting up a joint venture to handle the project under one organization was disrupted when each of the three firms began boasting about its tunnel driving ability. Which is the best tunnel outfit? They're going to find out by laying the job out from three adits, each tapping 14,000 ft. of tunnel. Each firm is going into its assigned adit with its own crew and drive tunnel until they hole through into the other fellow's section. Hear those drills chatter! Listen to those rounds pop! Watch that muck fly! Tunneling records, prepare to meet thy downfall.

MICHIGAN not only kept her state highways open this past winter despite unusually heavy snows, but kept them dry and safe by applying thousands of tons of salt and calcium chloride for ice control. A great expense to the highway department? None at all say the officials, who estimate the increased gas tax resulting from ice-free roads, more than paid all expenses of winter maintenance.

AFTER TWICE rejecting bids for Clarks Hill Dam on the Savannah River as being too high, way beyond all estimates, the Army Engineers have set themselves up as general contractor on the project and are subcontracting all construction work in small parcels. Several such awards have already been made at prices, say the engineers, "well within the estimate." This appears to be a case where individual contractors can figure relatively small short-time jobs cheaper than combinations tackling a great big long-time project. In

HERE'S HOW IN THIS ISSUE

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this light it will be interesting to see how Garrison Dam in North Dakota is bid, for the contractors urge the Army Engineers in charge there to let all the 75,000,000-yd. fill as one job, including the outlet and control works.

WHY SO FEW CONTRACTORS belong to the Construction Section of the National Safety Council is a mystery, in view

of what the Section has to offer in conducting sound construction safety programs. Obviously the contractors have never been sold on the benefits of membership. A more logical and rational membership plan on the part of the Council might help, too. It must realize the difference between construction and manufacturing industry in setting up its membership requirements.

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JAMES H. McGRAW, Founder and Honorary Chairman

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His Sense Saved My Dollars!

Talk about a money-saving idea, this one that my Oliver "Cletrac" dealer suggested really takes a prize! We were doing the dirt moving on this ground-leveling job, and what with high costs and weather troubles, were getting a little worried about both time and money.

Our Oliver "Cletrac" man came out to look over the job one day, and I did a little high-class beefing about the whole thing. Then he popped this one. "Why not build a sunken loading platform to load out the trucks?" he asked. "Then your tractor-scraper unit can haul the dirt up on the platform and dump it through an opening into the truck body. You'll eliminate a shovel and save a lot of time that way, and time is money these days."

It was a darn good idea—one we just had overlooked. We went to work on it right away and believe me, it really saved our hides. That Oliver "Cletrac" man sure knows the dirt-moving business and he's a good man to know!

Cletrac

a product of

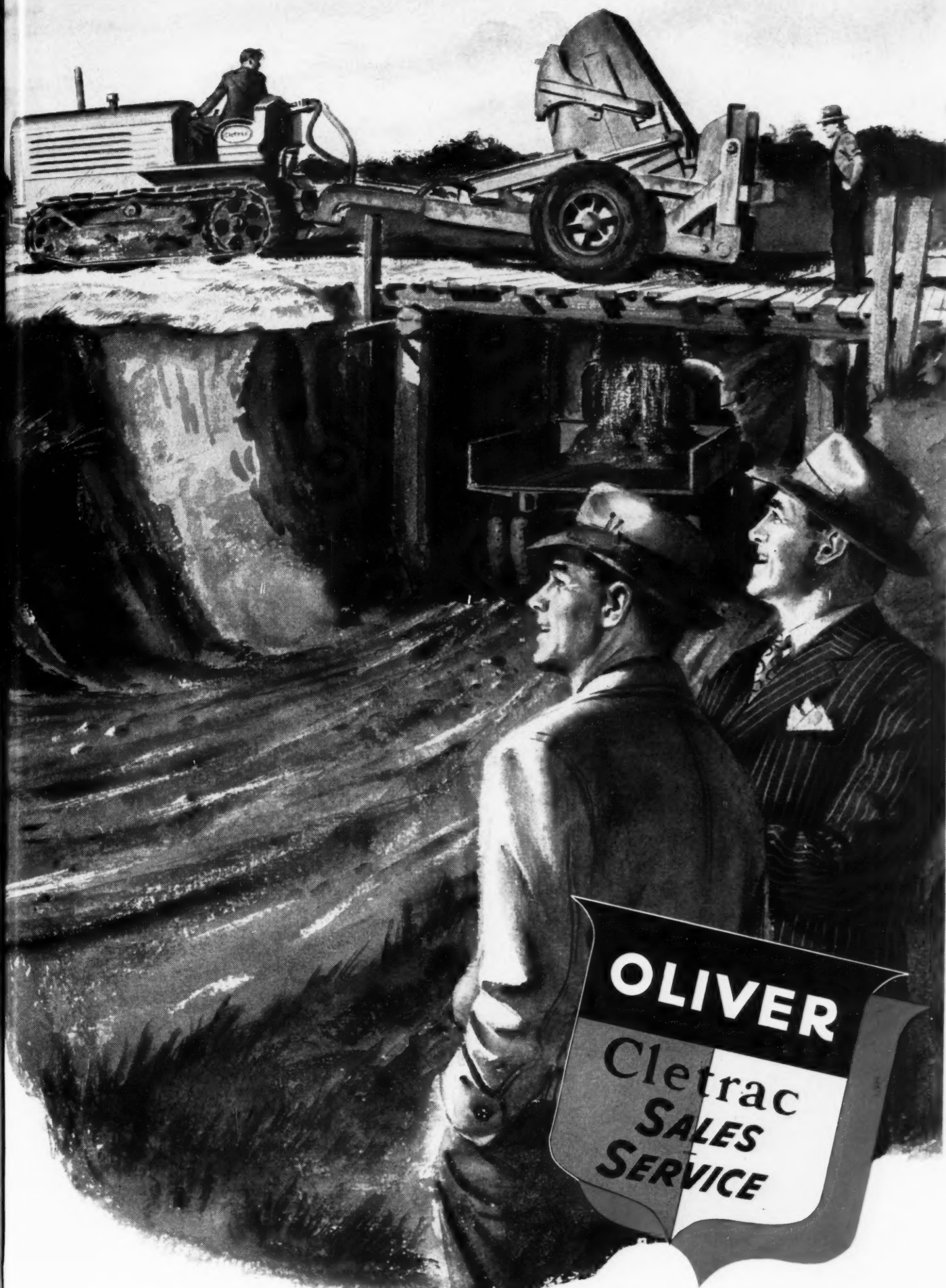
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"THE SIGN OF EXTRA SERVICE"

THE JOB JESTER

CARTOONS DRAWN FOR CONSTRUCTION METHODS



"Aw shucks! I told 'em to put in a file."



"Okay, boys, fasten it. That's about where I'll be leaning back."



We Practice what We Preach!



LONE STAR CEMENT'S NEWEST OFFICE BUILDING DRAMATIZES ADVANTAGES OF ARCHITECTURAL CONCRETE



RECENT trends are running strongly toward architectural concrete—the sound, modern architecture which frankly expresses a building's function in its own attractive design. Lone Star Cement's newest office building at Bethlehem, Pa.—shown above—illustrates this principle, as applied to smaller structures, so you might say it is practicing what we preach. Lovelace & Spillman, Bethlehem, Pa., were the Architects; the Contractor was E. C. Machin, Inc., Allentown, Pa.

Regardless of size or kind of structure, for utmost fire-safety and maximum economy *in use*, build it with concrete. For utmost economy and quality *in construction*, select the Lone Star Cement that fits the job. Wherever forms can be used repetitively, use 'Incor'* 24-Hour Cement. Form and time savings with 'Incor' were never so great as they are right now! *Reg. U. S. Pat. Off.

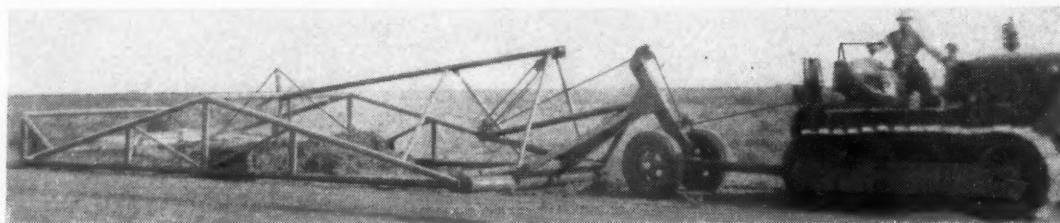


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- ROADS FOR SURFACING
- AIRPORTS FOR LANDING STRIPS
- LAND FOR ALL PURPOSES



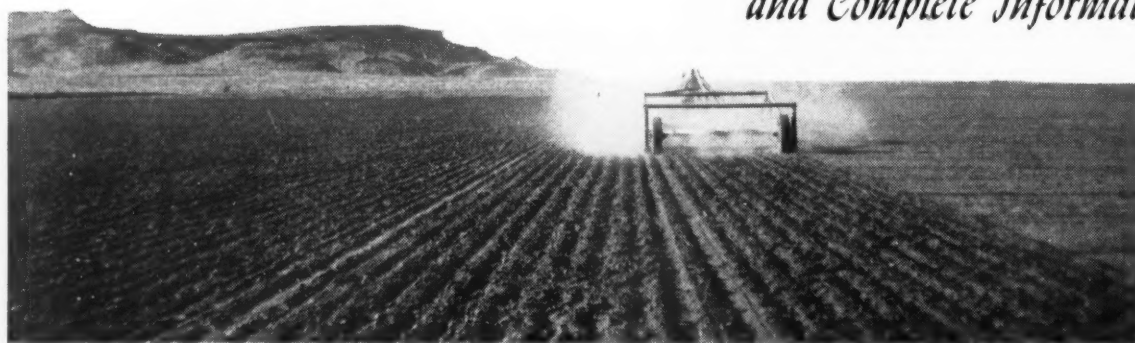
The most enthusiastic boosters for the EARTH PLANE are the farmers and irrigation engineers who are most interested in a perfect job of levelling. See the EARTH PLANE work if there is one in your community—or, write for the names of owners who will give you first-hand information.

Below: Higley EARTH PLANE planing and furrowing the land in final pre-irrigation operation.

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EUCLIDS at work on **DAVIS DAM**



EASY LOADING—Wide hopper speeds loading, reduces spillage and increases efficiency of the loading unit.

FAST DUMPING—Full length door openings and steep, smooth hopper sides assure quick, clean dumping.

● About 67 miles below Boulder Dam, on the Colorado River, the U. S. Bureau of Reclamation is building Davis Dam, an earth and rock-fill structure of 4,400,000 cu. yds. Utah Construction Co. has the contract for the major part of this project, which includes 15,000,000 cu. yds. of earth work, and will take four years to complete.

A fleet of 41 Rear-Dump and Bottom-Dump Euclids is hauling this huge yardage of heavy excavation. Working on 'round the clock schedules, the "Eucs" have kept this tough job going in high gear. Their speed and large capacity, combined with rugged staying power, have enabled the contractor to stay ahead of schedule despite a wide range of operating conditions.

Because they are designed and built for efficient and dependable performance in heavy off-the-highway service, Euclids cut hauling costs. Ask your Euclid distributor or representative for complete information on the models best suited to your own hauling equipment needs.

The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO



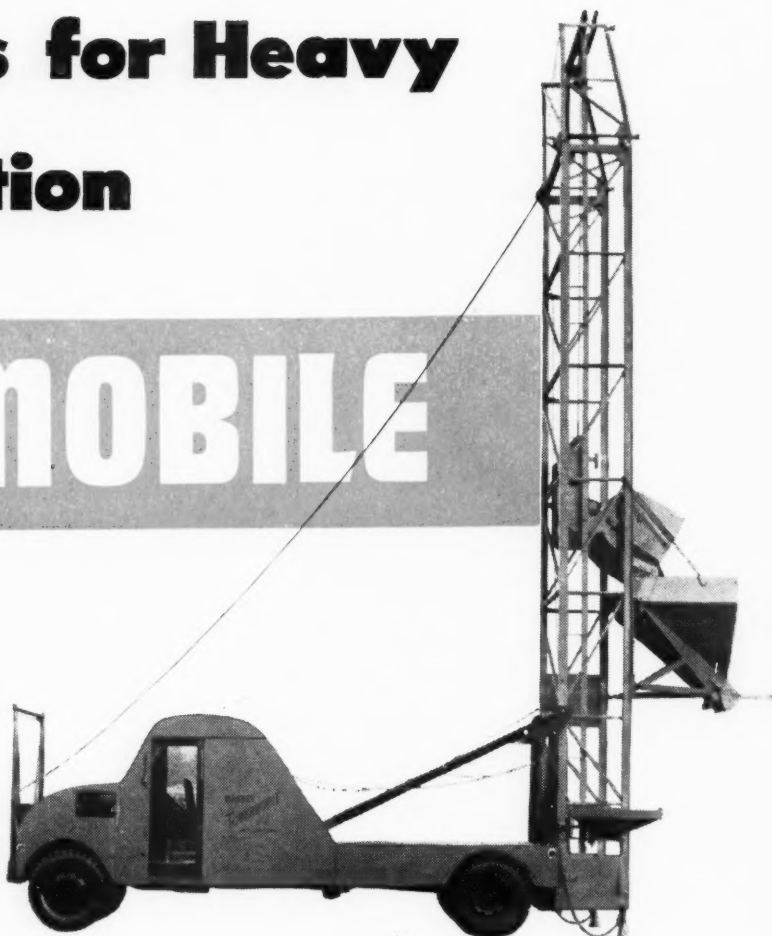
Rugged construction of Rear-Dump Euclids withstands impact of loading heavy excavation by large shovels. High dumping angle and clearance from rear wheels discharges load over edge of the fill.



Portable **ONE MAN** machines for Heavy Construction

TOWERMOBILE

Hoisting your concrete for high pours is no problem if you have a TOWERMOBILE. Saves all the preparation and last minute rush of rigging up a hoist or runways to get the concrete up to the pour. One man drives it to the job, sets up for operation in 15 to 30 minutes, and hoists and pours concrete up to 50 yards per hour. Tower is raised or lowered mechanically. Standard tower height is 45 feet. Elevating bucket is interchangeable with a 6-ft. x 6-ft. platform for hoisting other building material.



MIXERMOBILE

One man can mix and hoist up to 50 yards per hour with a Mixermobile. One man on the catwalk handles all controls. Truck-mounted, Mixermobile is driven to the job and can be set up for operation in less than 30 minutes. The standard tower height is 35 feet with one 10-foot extension, with additional 10-foot extensions available. Skip is self-loading, and mixer drum is 2-yard capacity.



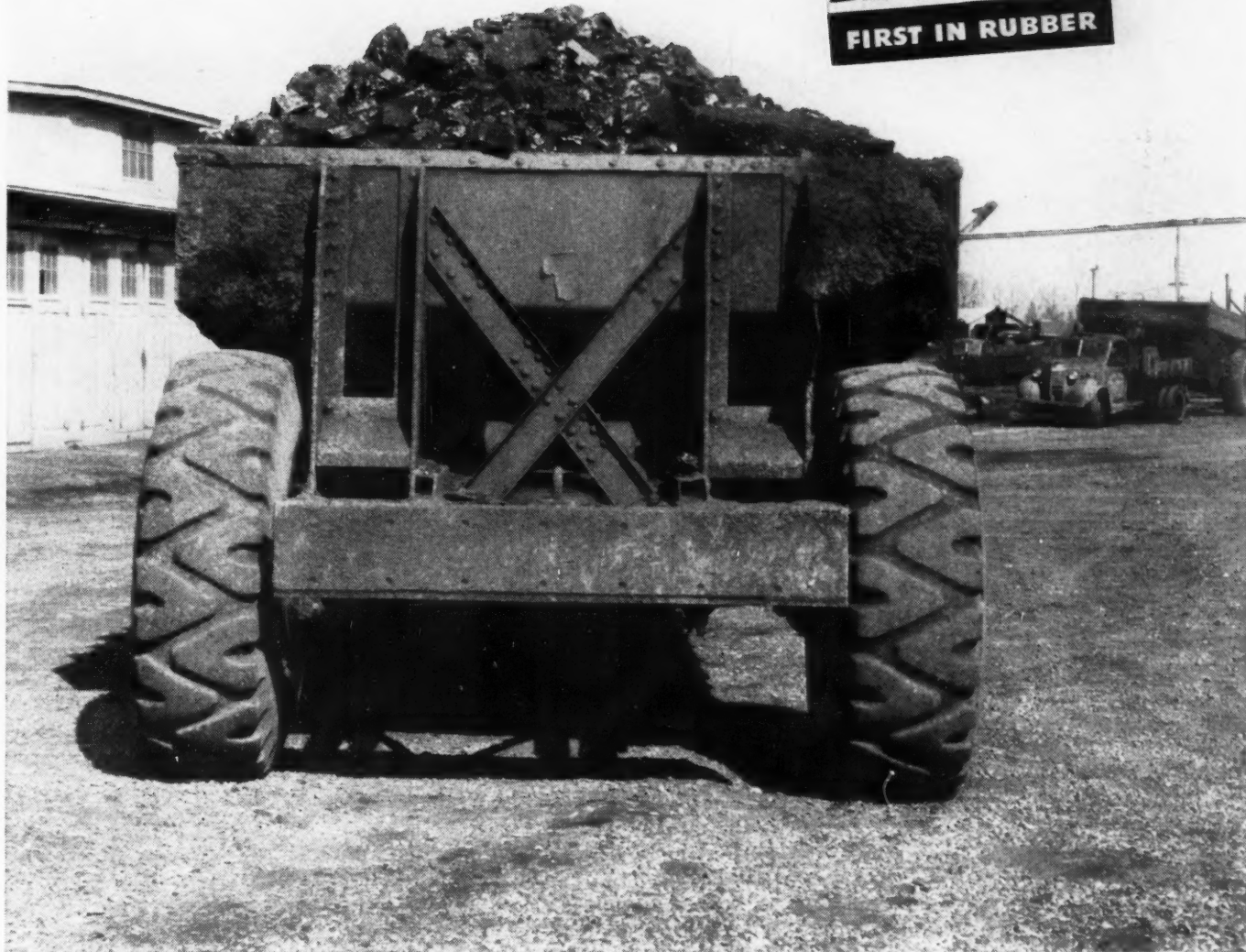
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A development of
B.F. Goodrich
FIRST IN RUBBER



Double shock shields in B.F. Goodrich tires now made of nylon

SHOCK SHIELDS in off-the-road tires have long been the B.F. Goodrich answer to the problem of impact bruises when tires strike boulders, ruts, timbers, and other sharp obstructions. Now, B.F. Goodrich is building shock shields of *nylon* for even greater protection against bruising.

In off-the-road tires a *double shock shield* is used. It consists of *four* layers of nylon cords between the tread and plies. These nylon layers are in pairs, one pair running at scientifically determined angles with the other pair to give strength.

The nylon cords in each layer run parallel, fully insulated in live rubber. Under impact, the cords in the shields

stretch together, *not* across each other, and return to their original position. Because of this principle, sharp impacts are *distributed*, absorbed. Shocks are actually shielded from the rayon cord body.

No make of tire other than B.F. Goodrich gives you the added protection of the *double* nylon shock shield . . . the additional saving through: (1) longer tire life; (2) increased number of recappable tires; (3) increased bruise resistance; and (4) less danger of tread separation.

Users of B.F. Goodrich off-the-road tires have always reported substantial savings in operating costs. Now with

nylon double shock shields added to protect the rayon cord body for greater all-around tire performance, greater all-around savings will be made.

The principle of the nylon shock shield is also used in all large-size B.F. Goodrich highway tires. Find out how B.F. Goodrich can help solve your tire problems. See the B.F. Goodrich dealer or write us direct. *The B.F. Goodrich Company, Akron, Ohio.*

Truck Tires **BY**
B.F. Goodrich



**Smoother Going
in Rough Stuff**

... no job too tough for sturdy Heil Hydraulic Bulldozers — they save you earthmoving time and money

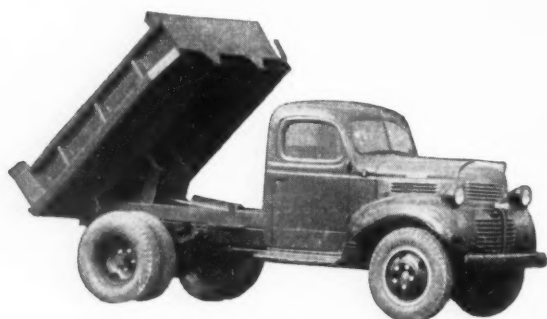
The easy-handling, trouble-free Heil hydraulic unit provides quick finger-tip control. The positive action allows the operator to place the blade exactly where he wants it. Even in rough stuff, the going is smoother—he digs faster and moves more dirt.

Heil Hydraulic Bulldozers just don't know when to quit. The all-welded, box-section construction, the sturdy connections, and the proper distribution of loads and stresses keep your tractors on the job longer—making bigger profits for you.

In addition to easy handling and longer life, Heil Hydraulic Bulldozers give you the scientifically contoured Heil Bulldozer blade. Developed after many years of earthmoving experience, this blade assures a cleaner cutting action and a bigger load-carrying capacity with no increase in size or weight.

So save yourself earthmoving time and money. Install a Heil Hydraulic Bulldozer on your Oliver-Cletrac—it's an easy, quick job. See your Oliver-Cletrac distributor. Write us for latest literature giving detailed facts and specifications.


Heil Dump Bodies and Hoists are built to take the punishment of tough working schedules — there is less time out, less expense for repairs, and you haul more loads per day, when these long-life units are on the job. Your local Heil distributor has all the facts about why it pays to use Heil Twin-Arm Hoists and Bodies.



THE HEIL CO.

GENERAL OFFICES

MILWAUKEE 1, WISCONSIN



These Northwests dig in fast! As a Pullshovel they make the basement job a smooth operation. Working from the ground level the Pullshovel keeps out of the hole, digs basement and handles sewer and water-line excavation. No trucks go into the hole or ride close to the cut to endanger the shoulder, and top soil is easily spoiled out of the way.

As a Shovel the Northwest crawler easily negotiates the muddy conditions of the average job. Alternate lugs give a self-cleaning action. Small rollers distribute the load over the whole crawler and the close-fitting shoes eliminate the nutcracker action that picks up material and chips treads.

Each machine is quickly convertible to the other or to a Crane or Dragline by simply changing booms.

There are years of basement and sewer work ahead. Plan now for money making equipment—Northwest equipment. Follow the Northwest Crowd.

NORTHWEST ENGINEERING CO.
1728 Steger Bldg., 28 E. Jackson Blvd.
Chicago 4, Illinois



Follow the
**NORTHWEST
CROWD**

Still the
Standard
toward which
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build!

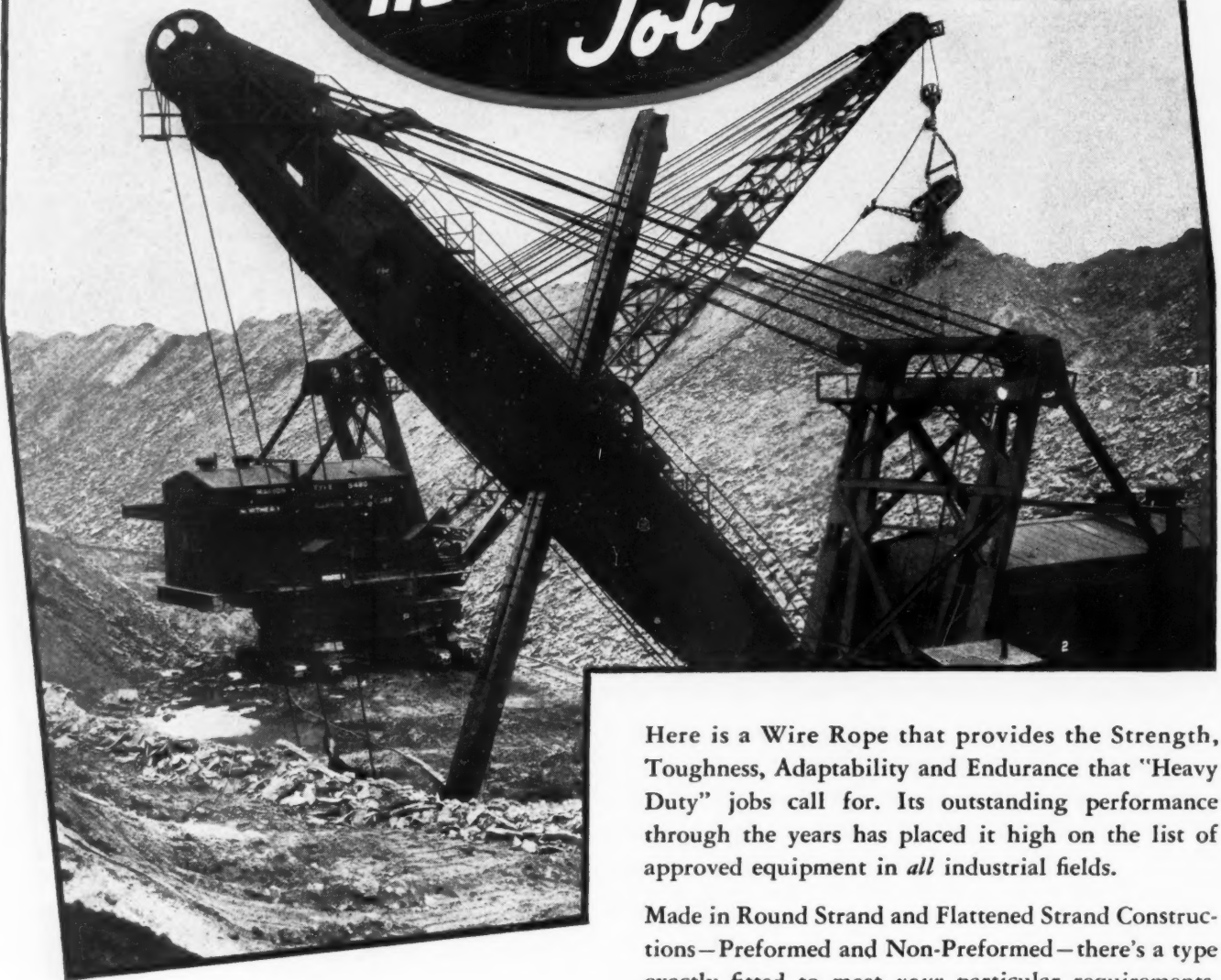
If you have a
REAL ROCK SHOVEL
you won't have to
worry about
output in dirt

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SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

*For that
HEAVY DUTY
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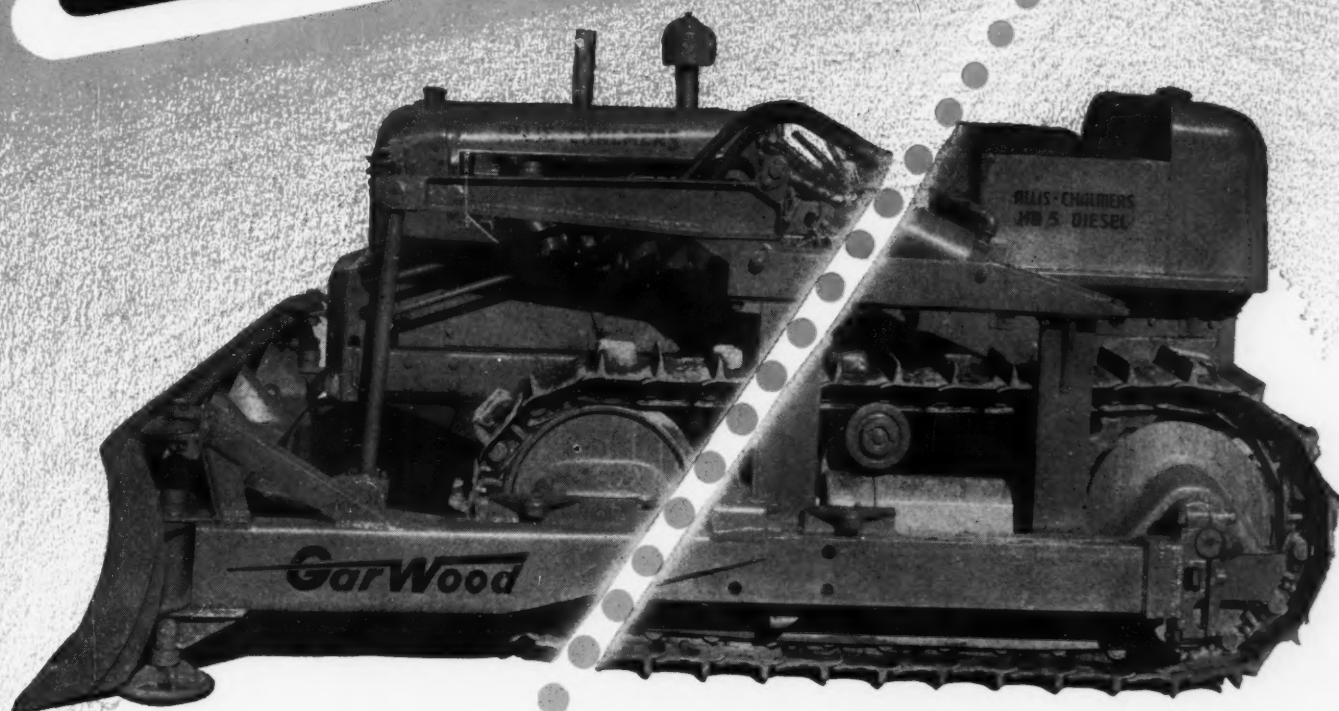
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Want proof? Ask the men who've been using Gar Wood Road Building Equipment all over the world. Ask them about

GarWood

Gar Wood quality and dependable operation when and where it counts. Then consider: this is newly designed, exactly-engineered, quality-built Gar Wood Equipment.

And then . . . for your own good . . . specify Gar Wood!

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See newspaper for
time and station.



TEXACO

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USE EFFECTIVE LUBRICATION TO INCREASE DRILL LIFE AND REDUCE MAINTENANCE COST

You can't buy more effective lubrication than Texaco Rock Drill Lubricants (E.P.) — and those letters "E.P." are an important reason why. They mean the oil has Extreme Pressure properties . . . extra high film strength to protect drills under the toughest conditions.

In addition, Texaco Rock Drill Lubricants (E.P.) flow readily at all temperatures, resist oxidation, cling protectively to moving parts and reduce wear. They prevent rust and corrosion whether drills are running or idle.



This all-around protection keeps drills running smoothly and on the job longer, with less downtime for repairs and overhauls. That's why operators and drill doctors everywhere prefer Texaco Rock Drill Lubricants (E.P.) and why leading rock drill manufacturers approve them.

Call on Texaco Lubrication Engineering Service for helpful suggestions on drill operation and maintenance. Contact the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

KEEP COMPRESSOR VALVES CLEAN

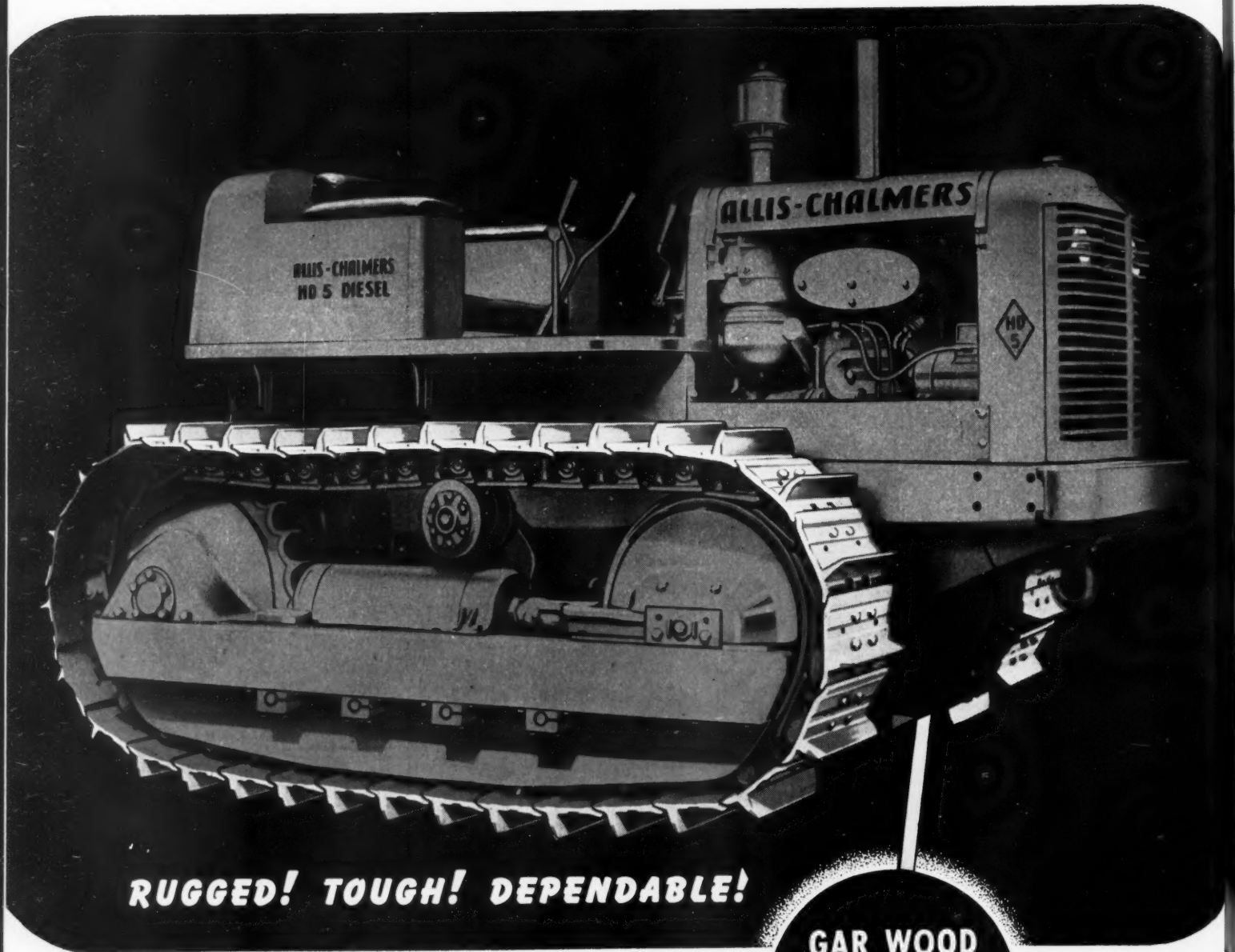
Here, too, effective lubrication is vital. Texaco Alcaid, Algol and Ursa Oils provide effective lubrication, prevent hard carbon formations, keep valves clean and active, rings free, ports open and air lines clear. Your Texaco Lubrication Engineer will recommend the right one to keep your compressors running right — efficiently and economically.



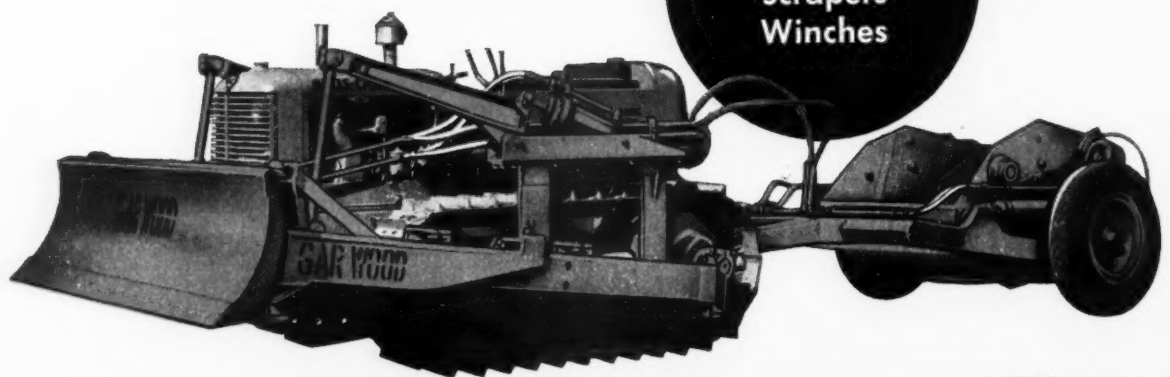
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FOR ALL CONTRACTORS' EQUIPMENT

*Knowledge
Experience
Cooperation* **BUILT
FOR A GREAT TRACTOR**



GAR WOOD
Bulldozers
Scrapers
Winches



A GREAT ALLIED LINE

New Allis-Chalmers HD-5 and Its Allied Equipment Match Fully and Completely

● Result of finest kind of cooperation between the various Allied manufacturers and the entire Allis-Chalmers organization, its dealers and users.

● Backed by the knowledge, experience and facilities of each manufacturer . . . each skilled in his own field . . . each firmly established in his own right.

● Specialized design and engineering. Allied equipment was developed and tested along with the HD-5 . . . made to fit exactly and to perform with maximum efficiency.

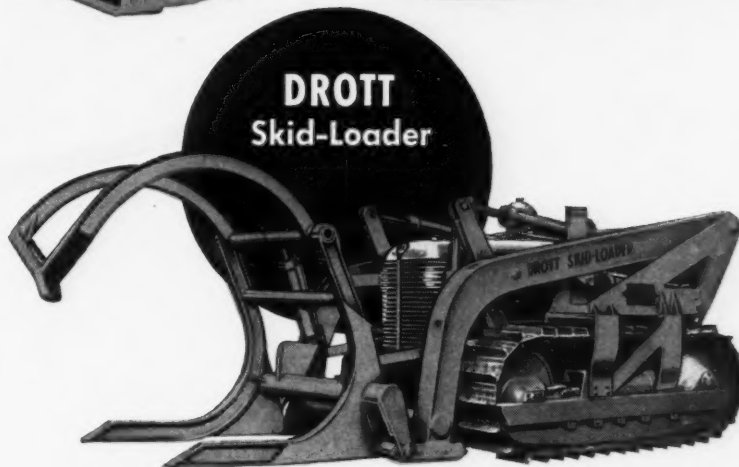
● Both tractor and equipment sold and serviced by the same organization — exclusively by Allis-Chalmers dealers throughout the country.

Yes, the HD-5 with any Allied unit is a fully matched power package . . . matched for greater output at lower cost.

TRACTOMOTIVE
Front-end
Shovels



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**PACIFIC CAR
AND FOUNDRY**
Logging Winches
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ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

KOEHRING

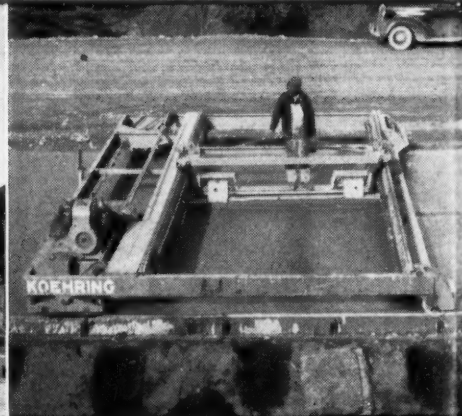
No turn-time...



Other Koehring Heavy-Duty units to help you



Koehring excavators range in size from $\frac{1}{2}$ yard up. Each built to exacting Heavy-Duty standards. See the Koehring 605 ($1\frac{1}{2}$ yard), Koehring 304 ($\frac{3}{4}$ yard), Koehring 205 ($1\frac{1}{2}$ yard).



Koehring Pavers have poured more concrete highways than any other. Get Bulletin on Koehring 34-E Twinbatch, New 1947 model of a famous line. Ask about Koehring Longitudinal Finisher, a Koehring exclusive.

DUMPTOR

More Haul-time

Dumptor never turns on shuttle hauls, runs backward as fast as forward

Are slow turns at the shovel, at the dumping point robbing you of important hauling time that could increase your profits? Time your present shuttle haul operation. Find out just how much turning costs you. Then, check Dumptor savings.

Here's How Dumptor Works On Shuttle Hauls:

Reverse speeds, three of them, are just as fast as the three forward speeds. On shuttle hauls, you never turn the Dumptor, either at the shovel or at the dumping point. You come in to the shovel, engine first. Loaded, you travel body first; at the dumping point, you're in the right position for instantaneous dumping, without a single turn.

Transmission Built for Shuttle Work: Dumptors, and only Dumptors, can shuttle without asking for transmission trouble. Unlike the conventional truck transmission, the Dumptor transmission is especially designed for this type of work. Gears that produce reverse travel are just as large as the "forward" gears. That's why there's no undue stress, no need for excessive lubrication, no transmission trouble.

Here's how Dumptor Constant Mesh Transmission looks and works.

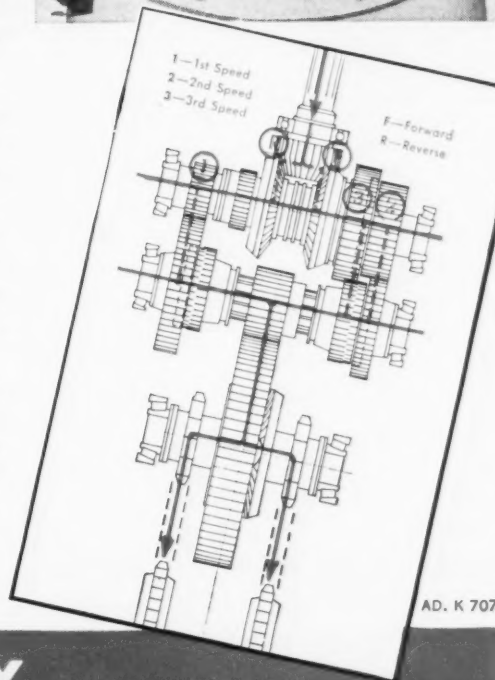
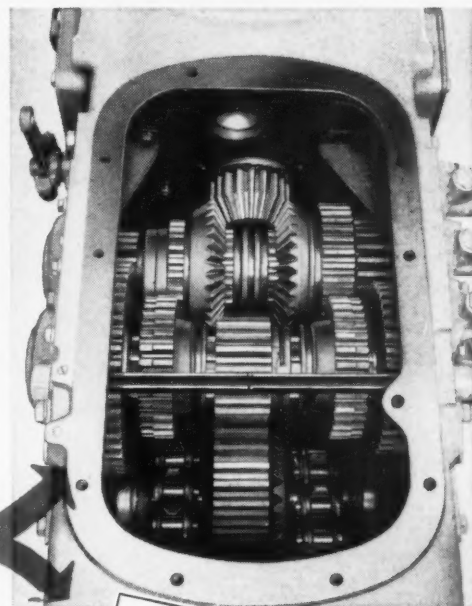
High speed travel without turn delays is only one reason why fewer hauling units will do the job if you're using Dumptors. Here are three other reasons:

Instant Dumping — No Body Hoist: Saves 10 to 20 seconds every time it dumps. No waiting for slow-raising body hoist. Dumps fast even in zero weather. Kick-out pan leaves body clean.

Drive Axle Built For Rock Hauling: Four-inch chrome steel drive axles are heat-treated. Heavy steel case protects entire assembly. Steel dump body has 4" channel reinforcements. Steering axle oscillates to absorb frame-twisting shocks of rough haul roads.

Easy to Maintain: Everything accessible. One man can grease Dumptor in 5 minutes. Clutch pulls out in a fraction of usual time because motor is not moved, transmission case is not touched. Every transmission gear is removable through one cover. No body hoist maintenance, because Dumptor has no body hoist.

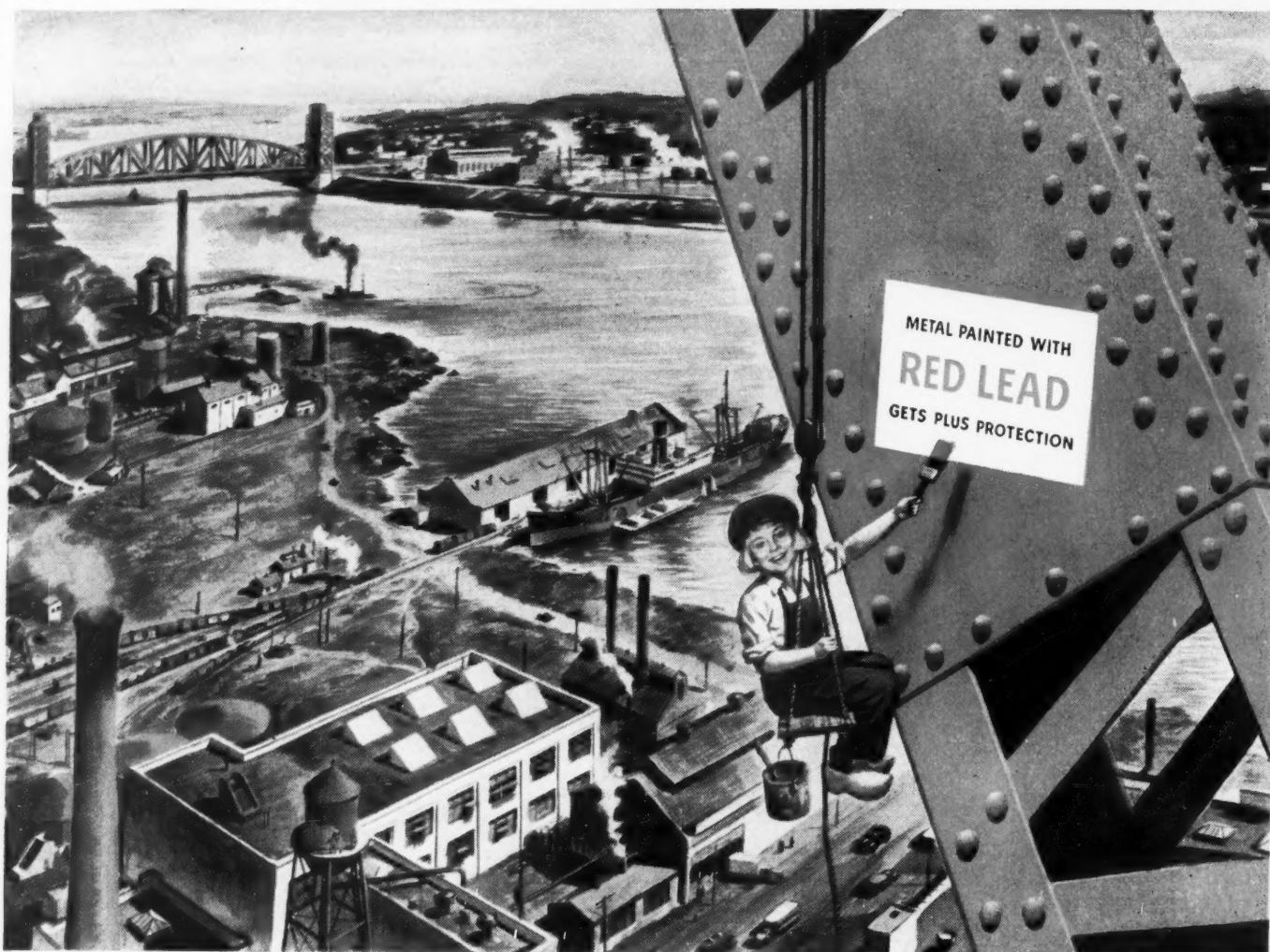
Experienced Dumptor engineers are ready to survey your shuttle haul problem. Contact your Koehring distributor today.



AD. K 707

KOEHRING COMPANY MILWAUKEE 10, WIS.

Subsidiaries: K W I K - M I X • J O H N S O N • P A R S O N S



Unique **RED LEAD** "Soaps" ...check Rusting 3 Ways

Scientific research shows why Red Lead has long been regarded as the "standard" metal-protective paint.

One interesting factor is Red Lead's ability to react with the vehicle and produce unique lead "soaps."

These "soap" formations grow to form a tough, impervious, intermeshing matrix within the paint film, as shown in the photomicrographs below. These "soaps" help Red Lead inhibit rust three ways.

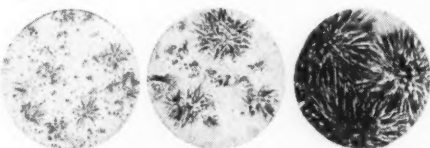
1. Toughen Paint Film. Radiating from central cores the "soap" formations develop long, rod-like projections, which spread out and interlock. Thus, they form a dense intermeshing structure that *mechanically* reinforces and toughens the paint film.

2. Make Film Water-Resistant. The very structural formation of these "soaps," with their thick, impervious matrix of closely-knit fibres, helps restrict the passage of moisture through the paint film. And metal cannot rust without the presence of moisture.

3. Keep Film Flexible. The "soap" formations, far from being rigid, allow movement all

along their soft, intertwining projections. The resulting flexibility helps prevent the ruptures to which a hard, unyielding paint film is subject. Thus the lead "soaps" aid in maintaining the continuity of the paint film.

Lead "soaps" form primarily in the dry paint film as it ages. This is where the "soap" formations impart their greatest benefits. When a paint film weathers and ages, decomposition products of the vehicle are formed. Red Lead's ability to slowly combine with these decomposition products actually enhances the life of the paint film. Red Lead's slow rate of reaction means the film age-hardens at a slower rate. It thus retains a high degree of flexibility, a great factor in its lasting adhesion.



The photomicrographs above show how Red Lead "soaps" progressively spread out as they grow and thus reinforce the paint film.

Remember, too, Red Lead is compatible with practically all vehicles commonly used in metal protective paints, including fast-drying resin types.

Specify RED LEAD for ALL Metal Protective Paints

The rust-resistant properties of Red Lead are so pronounced that it improves *any* metal protective paint. So, no matter what price you pay, you'll get a better paint if it contains Red Lead.

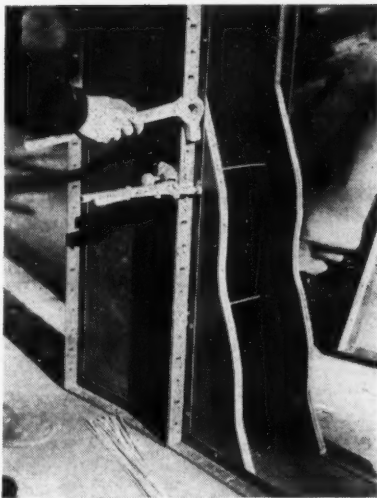
* * *

The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va., (Evans Lead Division).

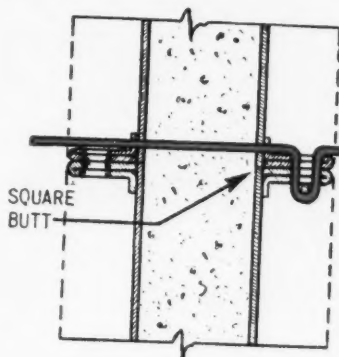


DUTCH BOY
Reg. U.S. Pat. Off.
RED LEAD



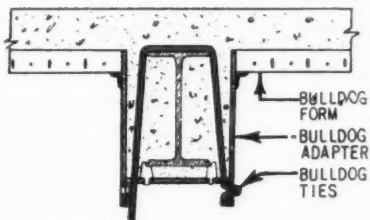
BULLDOG GRIP TOOL

Manufactured of highly durable material. Simple durable construction, will make Bulldog grips in any position the forms are in.



ALL STEEL FORMS

The Bulldog all steel forms have perfectly square butt joints, thus leaving smooth walls that require no finishing. No fins are left by the Bulldog Forms.



FLAT-SLAB CONSTRUCTION

With the use of Bulldog Adapters and Bulldog Forms on Flat-slab construction considerable material and labor costs are eliminated. Bulldog ties are used to fasten adapters to girders, forms are then placed on adapters.

Revolutionary!

BULLDOG TIES and FORMS

FOR SPEED AND ECONOMY

Yes—A plain piece of wire, that can be cut to any size, to make walls of any thickness within a fraction of an inch. There is nothing special about it. To make form walls, no twisting of wire is necessary, no nailing, no bolting, no wedging.

Just a plain piece of wire!

Bulldog Ties can be locked at any angle. They have "the grip of a bulldog."

The ties will assemble the forms and also act as a positive spreader with the aid of the Bulldog Tool. When pouring is in progress, the wire offers no resistance to the free flow of concrete.

An additional benefit derived by the use of Bulldog Concrete forms is that when the forms are stripped the tie wires can easily be taken out altogether, if desired.

THE BULLDOG CONCRETE FORM CORP. can furnish forms that exactly meet your requirements, if you have a problem, send us your blue prints. No obligation on your part.

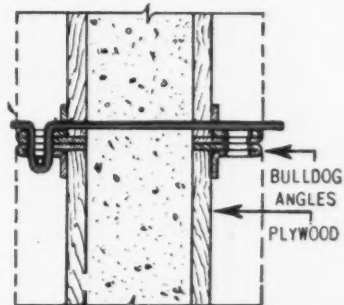
ERECTION TIME TEN SQUARE FEET
PER MINUTE

Send this Coupon:



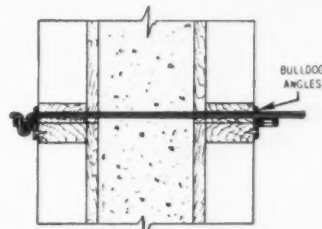
MAKING TIES

Ties are made right on the job. The required lengths are cut from coils of wire. Measure for your first tie and then cut the rest all the same.



PLYWOOD FACED FORMS

Bulldog Plywood Faced forms are outlined by a sturdily constructed steel frame. The frames so constructed that edge of plywood is protected all around. Like the all steel forms, plywood faced forms leave no fins on walls because butts are perfectly square.



HOME MADE FORMS

Angles can be fastened to home made forms, thus making them adaptable to ties used on regular Bulldog forms. The speed in which you put up and strip forms is one of the main factors in keeping up with competition.

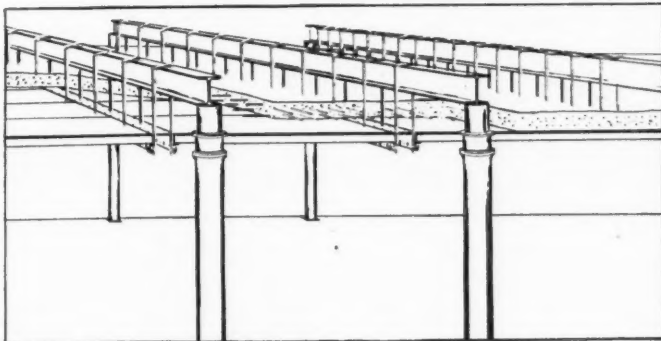


Illustration above shows a new system used on flat-slab construction. A temporary "I" beam rested on your projected columns supports all the form work by suspension. A considerable amount of labor and material is saved in this manner of construction.

PATENTS PENDING



BULLDOG CONCRETE FORM CORP.
100 W. 42nd St., New York, N. Y.

SEND ME FULL DATA ON BULLDOG
TIES AND FORMS.

Name

Address

BAKER STURDY



If it's low cost yardage you're after, the simplicity of Baker Bulldozers will pay off in many ways. In faster action; more accurate, more positive control; in less maintenance expense; in greater rigidity; in longer useful life.

Baker's are simple in design and construction — there's less linkage, fewer points of wear, direct down pressure, no wobble or shimmy — that is why Bakers deliver the yardage, hour after hour, shift after shift — and that's also why there are more Baker 'dozers on Allis-Chalmers

tractors than all others combined.

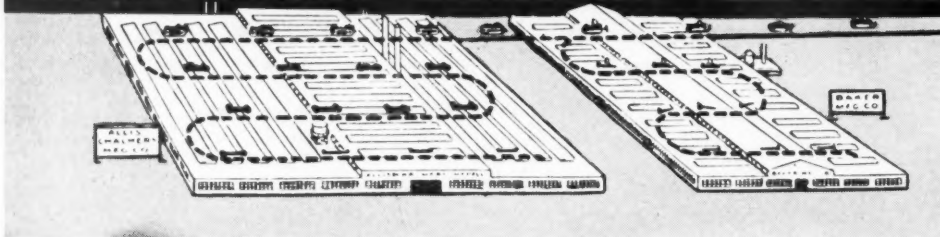
When you equip your A-C with a Baker, you've got the best combination on earth — a fine tractor, a great bulldozer, an unbeatable team. Get on the right track now — see your nearby A-C Baker distributor today.

BAKER MFG. CO • Springfield, Ill.

BAKER



"STRAIGHT THROUGH" ASSEMBLY LINE - ALLIS-CHALMERS TO BAKER TO YOU!



The modern Baker plant with its completely equipped fabricating, machining and blacksmithing shops adjoins the Allis-Chalmers crawler tractor plant. When you order an A-C tractor with Baker bulldozer or gradebuilder, your tractor leaves the A-C assembly line, crosses a narrow court and goes on the Baker final assembly line.

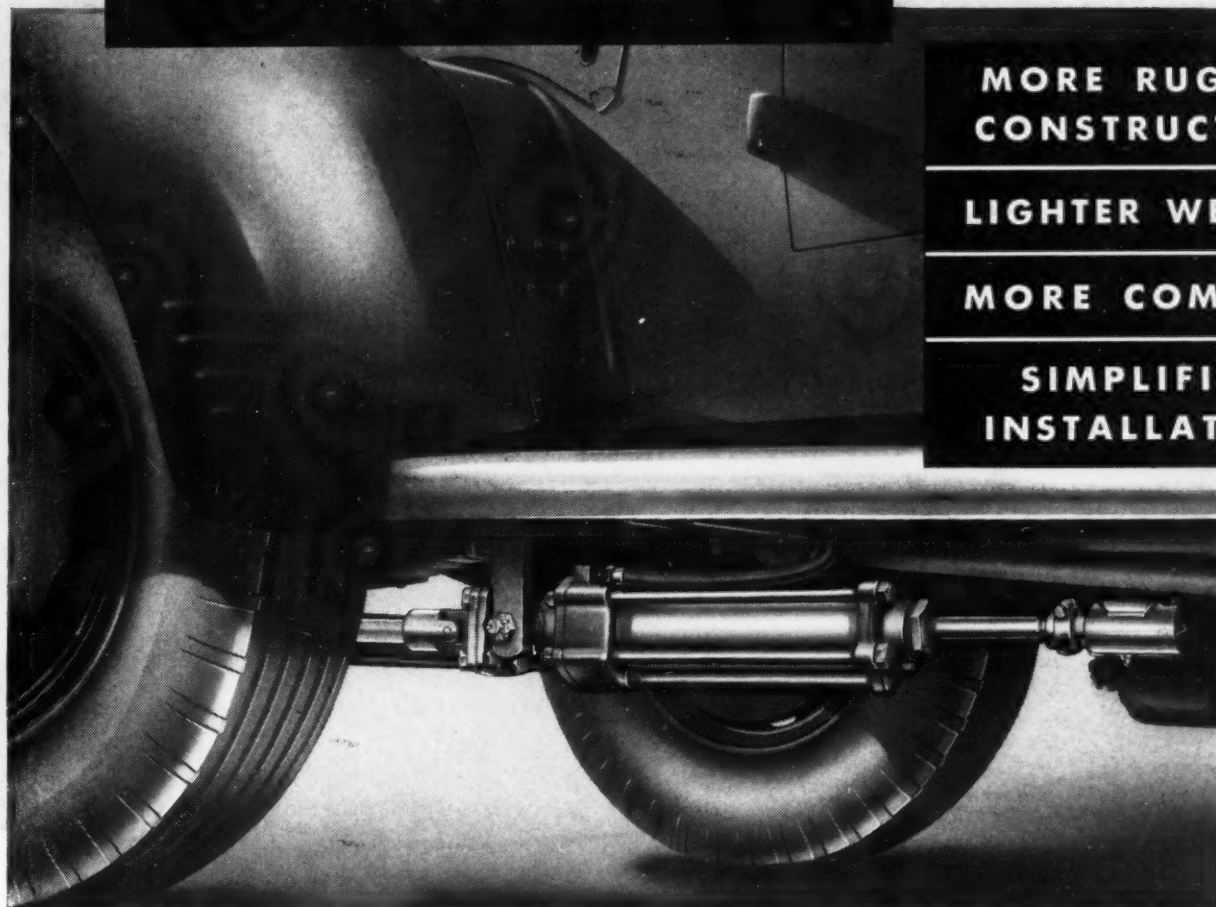
THE **VICKERS** *Hydraulic* **POWER STEERING BOOSTER**

**MORE RUGGED
CONSTRUCTION**

LIGHTER WEIGHT

MORE COMPACT

**SIMPLIFIED
INSTALLATION**



Added to the advantages always inherent in Vickers Hydraulic Power Steering are now lower price, a substantial saving in weight, more rugged and compact construction and an integral (instead of a separate) relief valve that greatly simplifies installation. More than a year's testing on city buses and heavy trucks under the most severe operating conditions has proved the redesigned Vickers Hydraulic Power Steering

ing Booster (original design has been in use for 16 years).

The steering effort required can easily be supplied by your little finger . . . steering load is carried by the hydraulic cylinder . . . road shocks are not transmitted to the steering wheel . . . automatic protection against abuse . . . see new Bulletin 47-30 for all the facts about Vickers Hydraulic Power Steering System.

VICKERS Incorporated • 1494 OAKMAN BLVD. • DETROIT 32, MICHIGAN

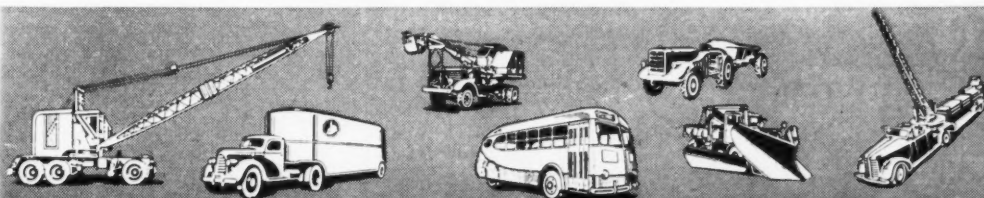
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PHILADELPHIA • ROCHESTER • ROCKFORD • SEATTLE • TULSA • WORCESTER

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Write for NEW BULLETIN 47-30

Illustrating and describing the Redesigned Vickers Hydraulic Power Steering System.

Representative Applications
of **VICKERS**
Hydraulic
POWER STEERING



JUST PUSH THE BUTTON



SCHRAMM

Making Air Compressors is the specialized job of Schramm Inc. and has been for the past half century.

When new and advanced features of design that make for improved air compressor service are introduced—you may be sure that they are introduced by Schramm Inc.

Take for example, the electric built-in starting feature of Schramm compressors. No cranking, no injuries; and air in a minute... Just touching the button puts your men and tools to work at once.

Other exclusive Schramm Air Compressor features include (1) 100% water cooled (2) Compact—lightweight (3) Mechanical intake valve (4) Forced feed lubrication.

SCHRAMM INC. THE COMPRESSOR PEOPLE
WEST CHESTER, PA.

Here it is at Last!



IT'S NEW . . . IT'S EXCLUSIVE
For the first time anywhere Maine
Steel, Inc. offers a Tractor Backhoe

This new Sargent Backhoe attachment, just on the market, adds another line of earth moving work for owners of The Sargent Overhead. It can be added to all of the Overheads now in use in the field or it can be purchased with new Overheads. The Overhead Shovel, with the Bulldozer and Backhoe now gives the owner one kit of tools that will complete from start to finish any number of projects at low cost.

Let's say you have a water pipe line to lay 5 ft. underground, and 2000 ft. through gravel and shale.

Load your Sargent Overhead Shovel, Backhoe and Bulldozer in a truck and haul it to the job. The Backhoe will dig the trench in less than two days. The Overhead can be used as a crane to lay the pipe, — then as a bulldozer to backfill your ditch and compact your fill solid and neat. All the excess earth can be loaded with the Overhead Shovel and carted away in a few hours. That's efficiency and economy of operation.

For details see your Cletrac Dealer

The New **Sargent BACKHOE**

adds another accessory
to the

Sargent OVERHEAD

Made by

MAINE STEEL INC., S. WINDHAM, ME.

TWO GOOD POINTS

about *Thor* "Extra Wallop"



only *Thor*

MOIL POINTS

... CAN TAKE IT

... CAN DELIVER IT

More than simply the best hardened steel, each Thor moil point is *precision-finished* as carefully as the *accurately-machined* parts of the breaker. Shank length is finished to close tolerances to meet the tappet perfectly. Flat-finished striking surface maintains alignment... and prevents irregular wear of working parts. Results? Every blow strikes at maximum efficiency. Even with the full power of a Thor Breaker's "extra wallop", point and breaker wear longer. See your THOR dealer.

INDEPENDENT PNEUMATIC TOOL COMPANY

600 West Jackson Boulevard, Chicago 6, Illinois

Birmingham	Boston	Buffalo	Cincinnati	Cleveland	Denver	Detroit	Houston
Los Angeles	Milwaukee	New York	Philadelphia	Pittsburgh	St. Louis		
St. Paul	Salt Lake City	San Francisco	Toronto, Canada				London, England

Thor **PORTABLE POWER**
TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

Barber-Greene



Typical set-up of the Barber-Greene Maintenance Plant. Various combinations to meet your immediate needs may be easily arranged.

This *Small* Bituminous Mixing Plant Does a *BIG* Job!

Here's a complete, easy-to-operate, small bituminous mixing plant! It is specifically designed for maintenance and repair work, small road building projects and a variety of other surfacing jobs. The B-G Maintenance Plant will handle any type of mix, and its capacity is remarkable, considering its size and portability.

The B-G Maintenance Plant is truly portable and easily erected. Small enough to operate at low cost on maintenance and general repair work,

it is still large enough to handle small construction projects. It operates on the same principles as the larger Barber-Greene Central Plant, measures the correct amount of aggregate and bitumen, thoroughly mixes them and discharges the mix into trucks.

It consists of two basic units—the 840 Mixer and 830 Aggregate Dryer. Each unit is equipped with a towing hitch and pneumatic tires to trail smoothly behind your truck when going from job to job. A complete line of auxiliary equipment available including Reciprocating Feeder, Bins, Dust Collector, etc. For illustrative literature, write Barber-Greene Company, Aurora, Illinois.



BARBER-GREENE COMPANY • AURORA, ILLINOIS

Constant Flow Equipment



LOADERS



PERMANENT CONVEYORS



PORTABLE CONVEYORS



COAL MACHINES



BITUMINOUS PLANTS



FINISHERS



DITCHERS

Gulf Quality Lubricants and Fuels

help contractor keep ahead of schedule

on tough highway job!



S. Rotondi & Sons, Stoneham, Mass., have the contract to widen and pave approximately 2½ miles on Route 107 between Lynn and Salem, Mass. This \$433,000 job involves blasting and removal of rock from solid ledges up to 300 feet long and 25 feet in height.

"OUR EQUIPMENT has performed without a hitch on this road job with Gulf quality lubricants and fuels in service," says Charles Rotondi of S. Rotondi & Sons. "That's one big reason why we're keeping ahead of schedule, with very low costs for maintenance."

The use of quality petroleum products is one of the surest guarantees of efficient job operation and lower maintenance costs for equipment—which add up to greater profits! That's why so many leading contractors engaged in all types of construction work specify Gulf lubricants and motor fuels. They deliver an extra margin of performance!

Gulf quality lubricants and fuels are quickly available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

Gulf Oil Corporation • Gulf Refining Company
Division Sales Offices:

Boston • New York • Philadelphia • Pittsburgh • Atlanta
New Orleans • Houston • Louisville • Toledo



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Memphis—HOWELL EQUIPMENT CO.

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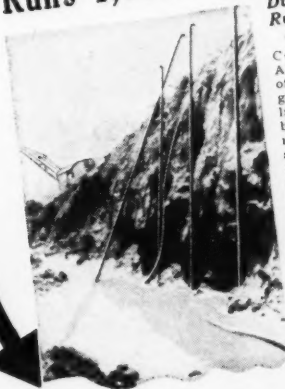
WISCONSIN
Milwaukee—STONE MANUFACTURING CO.
Port Falls—STEIGER MOTOR SALES

NOVO NEWS

APRIL, 1947

"Pronto-Prime" Survives Cave-ins, Runs 1,008 Consecutive Hours!

Dug Out, It's Ready to
Run After a Bath



The scene is Bremen, Indiana. Construction workers under Arthur M. Keyser, Superintendent of Light and Water, are struggling against odds to lay a sewer line in wet, sandy soil three feet below the water table. The ditch resembles a small river despite all efforts to keep it dry. Pump after pump fails. The sandy water and eleven to seventeen-foot lift are too much. Finally, Mr. Keyser adds a Novo "Pronto-Prime" pump. In true Hollywood style, cave-ins fearfully, workers dig it out time after time—remove the cleanout plate—dash in some water—bake the magnet dry—reinstall it—start the engine. Instantly, as if being buried alive were nothing, "Pronto-Prime" is at work again runs steadily for 1,008 hours!

...and Here's the Sequel— It's Still Going Strong!

"It's Sure a Dandy," Says Septic Company Chief



J. G. FRANCIS

"The best performing, self-priming centrifugal pump I've ever operated," is what President J. G. Francis of Superior Septic Tank Co., Detroit, says about the "Pronto-Prime." "It's easy to prime, doesn't require any attention, throws the water regardless of whether the lift is 5 or 15 feet, and runs four or five hours on a gallon of gas. It's a dandy!"

Other Novo Equipment

Novo contractors' equipment includes diaphragm pumps, pressure pumps, hoists, generator sets, pavement breakers, traffic line-markers, and engines.

By all odds, this Novo "Pronto-Prime" pump should have been awarded the Purple Heart and retired from service long ago.

It's the 1½-inch pump which did the impossible at Bremen, Indiana was rescued from repeated cave-ins . . . ran steadily for 1,008 consecutive hours . . . then licked other jobs without repairs of any kind.

And it's still going strong! Right now, this same "Pronto-Prime" is pumping water heavily laden with quicksand. In sewer work being done by the Superior Septic Tank Company of Detroit, the pump is started in the morning, swishes out the water, runs idle for 15 to 60 seconds, pumps again, idles again—continues the cycle for hours without attention.

The performance record of this pump is convincing proof of the efficiency of the Novo stout-hearted seal and the sturdiness of its over-all construction.

NOVO

ENGINE COMPANY
LANSING 8, MICH. U.S.A.

CONTRACTOR'S EQUIPMENT
• GRAY IRON CASTINGS •
ENGINES



Allied Member of A.E.D.

BE WISE! *Modernize Now*



Hunter Construction Co. of Ada, Oklahoma is another of the hundreds of smart earthmovers who are finding that modern LaPlant-Choate scrapers move more dirt at less cost—even with old tractors. Note the heaping load being handled by this LaPlant-Choate C-114 on a highway relocation job near Ardmore, Oklahoma.

Why gamble with inefficient pre-war scrapers when you can get modern **LPC's** in a hurry!

The old story about "trying to do *tomorrow's* jobs with *yesterday's* equipment" is *doubly* true of scrapers—because it's the scraper that handles the payload, which in turn controls your profit on every job. Consequently, in times like these, it just doesn't pay to struggle along with inefficient, old style scrapers that waste valuable pay yardage, burn up tractor power and require excessive maintenance. Far better to replace those old "relics" *now* with modern LaPlant-Choate units—proved by competitive tests to be the *easiest loading, fastest spreading scrapers on*

the market. This way you'll get higher average production at lower over-all cost and thanks to LPC's modern open top design, which simplifies loading with shovel or dragline, you'll also be able to use your scrapers for utility hauling and spreading. Best of all, LaPlant-Choate scrapers in most sizes (from 2 to 14 yd. struck measure) are ready for *immediate delivery.* So don't delay. Better get complete facts today from your nearest LPC distributor. LaPlant-Choate Manufacturing Co. Inc., Cedar Rapids, Iowa; 1022 77th Ave., Oakland, California.

LaPLANT CHOATE

Positive

FORCED EJECTION SCRAPERS

FIRST in Value because they're
FIRST in Performance!

with LAPLANT-CHOATE RIGS



Even mud and sticky gumbo are quickly and easily spread by the LaPlant-Choate positive forced ejection scraper, leaving the bowl perfectly clean after every trip. Gravel and clay from the borrow pit also are spread smoothly and evenly in higher gear than is possible with ordinary scrapers on the market today.

... Be sure your scrapers have *All these Modern Advantages*

★ THREE OPTIONAL BLADE DESIGNS

- a. Bowed offset edge (standard) — for best results under all average job conditions.
- b. One piece bowed edge—for rock and sand loading where penetration is not a problem.
- c. Special finishing blade—with wide reverse curve for land levelling and finishing.

★ **LOW WIDE BOWL WITH CURVED INTERIOR** and reinforced bottom for maximum "boiling action," longer service life.

★ **MODERN OPEN TOP DESIGN**—for easy loading by shovel or dragline.

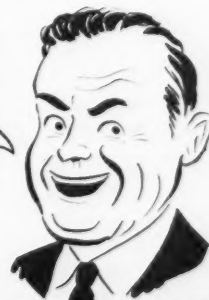
★ **POSITIVE FORCED EJECTION** with high lifting front apron—for fast, smooth spreading under all conditions.

★ **LOW CENTER OF GRAVITY** plus low overhead clearance and high carrying clearance under bowl—for maximum maneuverability.

★ **LOW OVERALL WEIGHT** plus proper weight distribution and proper flotation—for easy hauling, low horsepower requirements.

★ **INTERCHANGEABLE PARTS (INCLUDING TIRES)** plus quick, easy accessibility for servicing with standard tools.

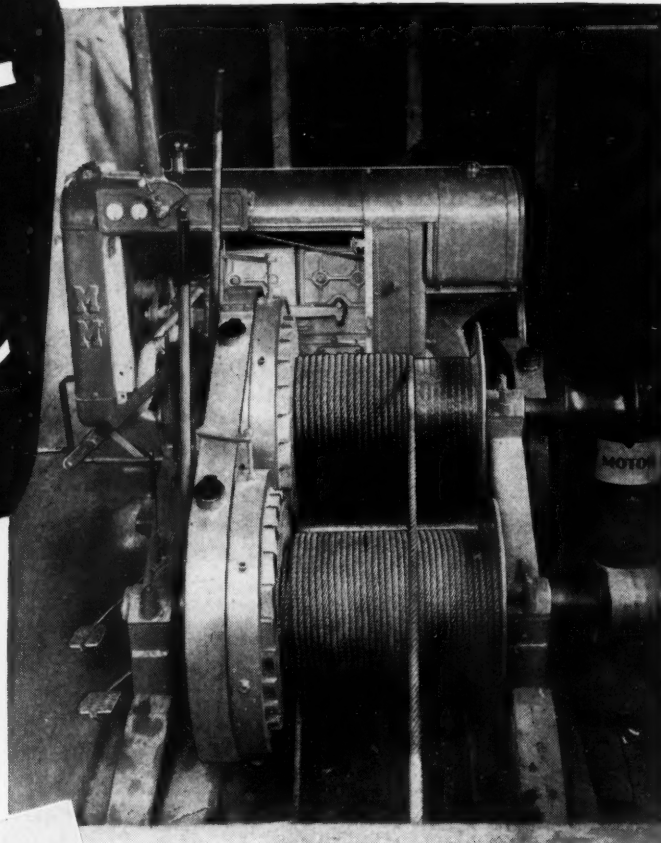
HAVE YOU EVER NOTICED
THAT THE FELLOW WITH
THE BEST EQUIPMENT
USUALLY MAKES THE
MOST MONEY?



INDUSTRIAL POWER *with your*



*Adaptable
to
Many
Needs*



206A-4A Operating Hoist

MM Modern Industrial Tractors and Power Units provide economical and dependable power for handling materials and performing with ease a large variety of jobs in highway and building construction.

Balanced weight and power of MM Industrial Tractors, their heavy duty steering gear, front axle, and tire equipment, and their fine range of forward speeds and high speed reverse gear make them ideal for use with various attachments such as loaders, cranes, hoists, and material buckets, as well as for heavy drawbar work.

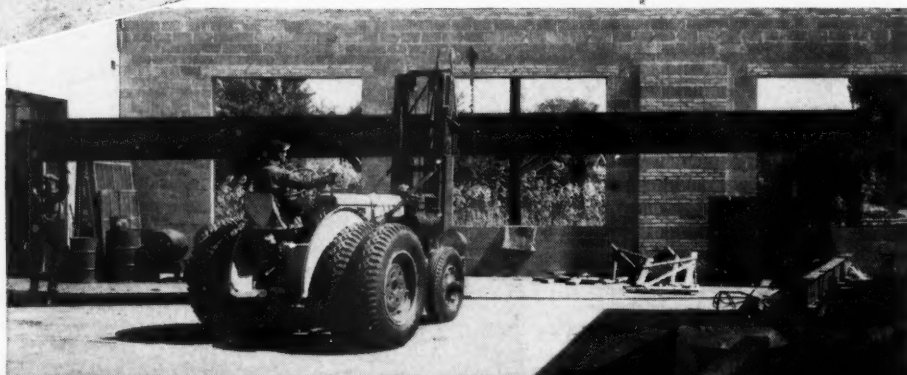
MM Power Units in seven sizes from 20 H.P. to 206 H.P. provide steady, dependable power ideal for operating generators, pumps, conveyors, compressors, hoists, winches, and cranes.

Left: MM RTI Industrial Tractor With Front End Loader Using Shovel

Below: MM Industrial Tractor With Front End Loader Using Forks



See your nearest MM Dealer
—Distributor, or write for
facts.



MINNEAPOLIS-MOLINE POWER IMPLEMENT COMPANY
MINNEAPOLIS 1, MINNESOTA, U. S. A.

LOOK TO

P & H

FOR ADDED VALUES



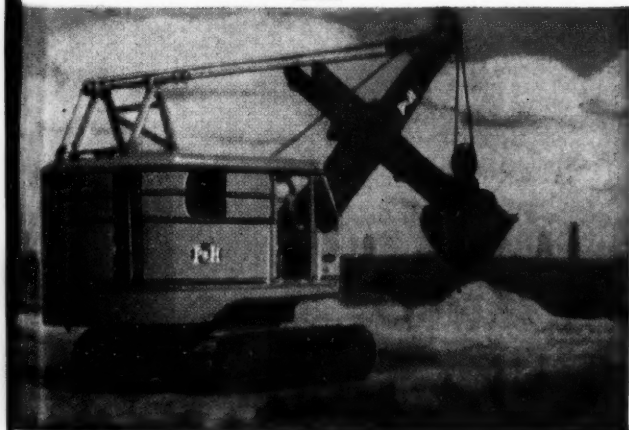
GREATEST CRAWLERS

ever put on an excavator!

• How much could you save each year if you could eliminate all your crawler troubles? How much waste time? How many repair bills? How much money?

For years, traction troubles have been a major source of lay-up and expense for excavator owners. Because traction mechanism is so important, P&H has gone the limit to provide the most practical and efficient assembly ever put on an excavator—true tractor type crawlers!

Their design and construction, proved in millions of miles of travel, brings you many new advantages—in smoother travel, easier maneuvering, easier steering, less lost time, lower maintenance. It's a P&H added value that will save you money every year—for the life of the machine.



P&H's husky crawler frames and axles are built of rolled alloy steels and welded integrally with the carbody. This rigid, "weave-proof" assembly withstands twists, strains and shocks from all directions. No bolts to wear loose, no holes to weaken the joints.

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ELECTRIC CRANES • EXCAVATORS • ARC WELDERS

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HOISTS • WELDING ELECTRODES • MOTORS

ANOTHER

P&H

ADDED VALUE Trouble-Free Traction

Crawlers Work on Roller Chain Principle

Shown with shoes removed. Note how driving force is exerted by rolling on pins instead of sliding on lugs. Operation is smoother, friction losses are lower, mechanical failures are fewer. Shoes, attached to rails by four bolts, can be removed without disturbing crawler belts. Hunting tooth design doubles sprocket life.

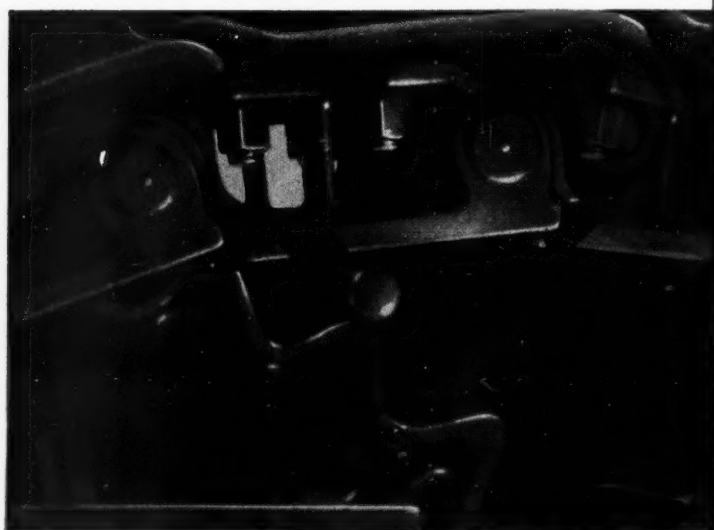
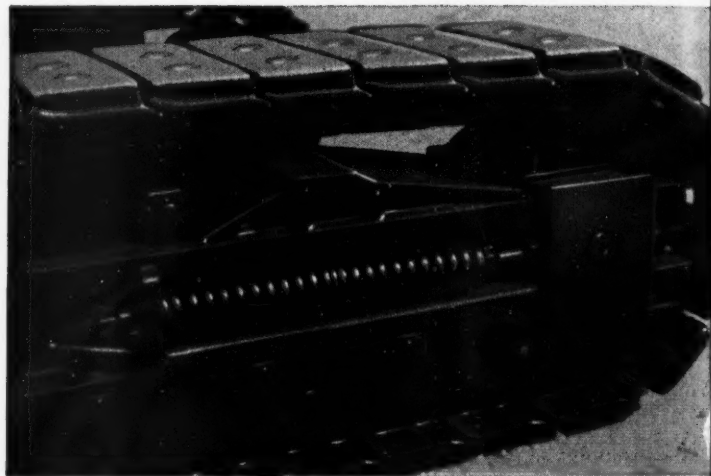
Maintains Proper Tension for All Ground Conditions

This compensator spring automatically assures and maintains tension of the crawler tracks under all ground conditions — in sand, gravel, quarry floors or deep mud. It prevents excess strains or "throwing" of the crawler belts. Sprocket can't slip on the tracks.

Protects You Against Breakage of Track Parts

In this actual test, a 2" steel bar (shown in red) is jammed between sprocket and track as sprocket makes complete revolution. No damage occurs. This illustrates what happens when stones or other obstructions are encountered. The compensator spring provides enough "give" to prevent possible breakage of track parts.

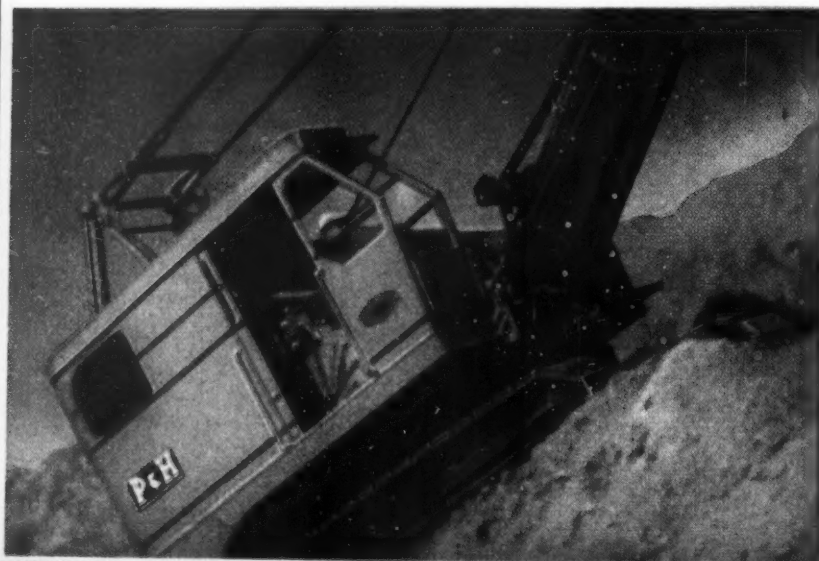
Ask for all the facts about these and other P&H added values. See your nearest P&H representative or write us for information.



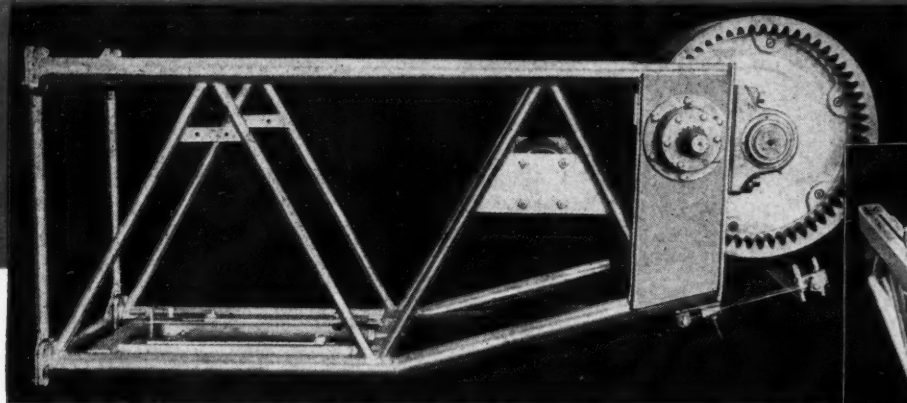
Perfect Control on Steep Grades

When work requires up or down grade travel, hydraulic propel brakes assure operating safety. Even in case of accidental breakage or disengagement of jaw clutches, P&H hydraulic propel brakes are sufficiently powerful to prevent a rolling away of the machine on the steepest grades.

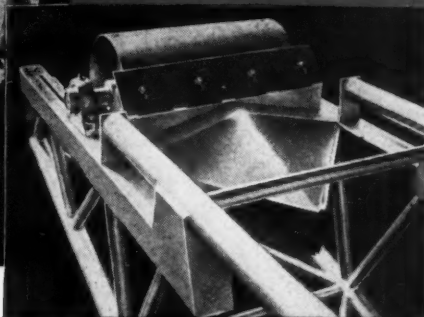
P&H Excavators are built in all sizes up to 6 cubic yards capacity, gasoline, Diesel or electric powered. Ask for literature on the size that interests you.



Here's the NEW IDEA in *Low Cost* bulk materials handling



MARCO tubular frame head section and drive terminal includes drive or head pulley and shaft assembly, snub pulley and internal gear final drive (drive motor mounts within frame).



Tail terminal is a unitized frame including tail pulley and shaft assembly, adjustable belt tension takeup mechanism, tail pulley guard and return belt wiper.

MARCO Tubular Frame Standardized Belt Conveyors

MARCO construction is an important new development in bulk materials handling. Retaining proven features of basic belt conveyor practice, the new MARCO offers marked improvements, resulting in greater utility, ease of erection, maintenance and economy of operation.

MARCO conveyors are available in 18", 24" and 30" widths with accessories such as belt feeding hoppers, belt wipers, sweeps, trippers, non-reversing brakes and gravity takeups. MARCO standardization includes unitized drive terminals, intermediate sections and takeup terminals.

If you are contemplating new construction or modernizing an existing installation, it will pay you to investigate all the time and money-saving features of new, improved MARCO equipment. MARCO engineers are trained in making recommendations to meet the special needs of your plant. Get all the facts concerning MARCO machines and methods. Write, wire or phone . . .

E. F. MARSH ENGINEERING CO.

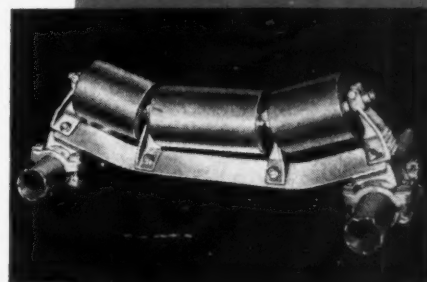
4324-26 WEST CLAYTON AVE., ST. LOUIS, MO.

Plan: Design . . . Engineering Service . . . Complete Pit and Quarry Equipment

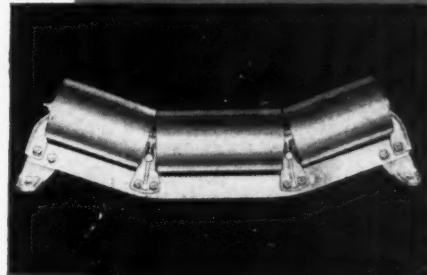


Other MARCO-ENGINEERED Products...

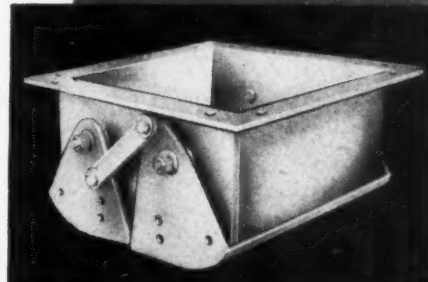
- Head and Tail Pulleys
- Variable and Constant Speed Belt Feeders
- Pan and Apron Feeder and Conveyors
- Belt Guide Idlers
- Car Unloading Conveyors



MARCO utility idlers having 4 1/2" diameter rollers are recommended for medium duty. Furnished in 18" & 24" widths only.



MARCO standard heavy duty troughing idlers with 5" diameter rollers are recommended for heavy loadings to provide maximum economy.



MARCO bin gates of all steel construction designed for balanced action and easy operation. 12", 14", 20" and 24" sizes. Seal tight gates also available.

A Tribute to
AQUELLA
from a prominent
California Architect



1372 SOUTH EL MOLINO AVENUE
PASADENA 5, CALIF

November 15, '46

Prima Products, Inc.
230 Fifth Avenue,
New York City.

Gentlemen:

I have been a practicing architect in Pasadena for something like forty years and have thought that you might care to have from me an endorsement of Aquella. I was the architect of the Pasadena Community Playhouse, the Huntington Art Gallery at San Marino, California, and some of the buildings of the California Institute of Technology.

My own home in Pasadena was built some 35 years ago. When the forms for the concrete of its basement walls were removed a number of fissures were disclosed which, during heavy rain storms resulted in the basement being flooded. This has happened virtually every year now since the house was built.

I knew that if I could get at the outside of the basement walls it would be a simple matter to apply waterproofing and stop the leaks. But that would be difficult and expensive. This year I thought I would experiment with Aquella on the inside of the walls. We have just had the worst rainstorm of the season. The rain came down in torrents for several days. But our application of Aquella to the inside of the walls stopped the leaks. Our basement is as dry as a bone. I am therefore glad to recommend Aquella as an unusually effective waterproofing compound.

Yours truly,

Elmer Grey

The principle on which Aquella works and how it is being used by architects, engineers and contractors to control water seepage on all porous masonry surfaces is told in our new brochure "Aquella and Concrete Masonry Construction." May we send you a copy?

PRIMA PRODUCTS, Inc.

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RAYON CORD TRUCK TIRES

with Rhino-Flex Carcass



TOUGH • FLEXIBLE • SAFE

HERE is the truck tire that can take a beating mile after mile—and snap back strong for more!

The name is Armstrong!

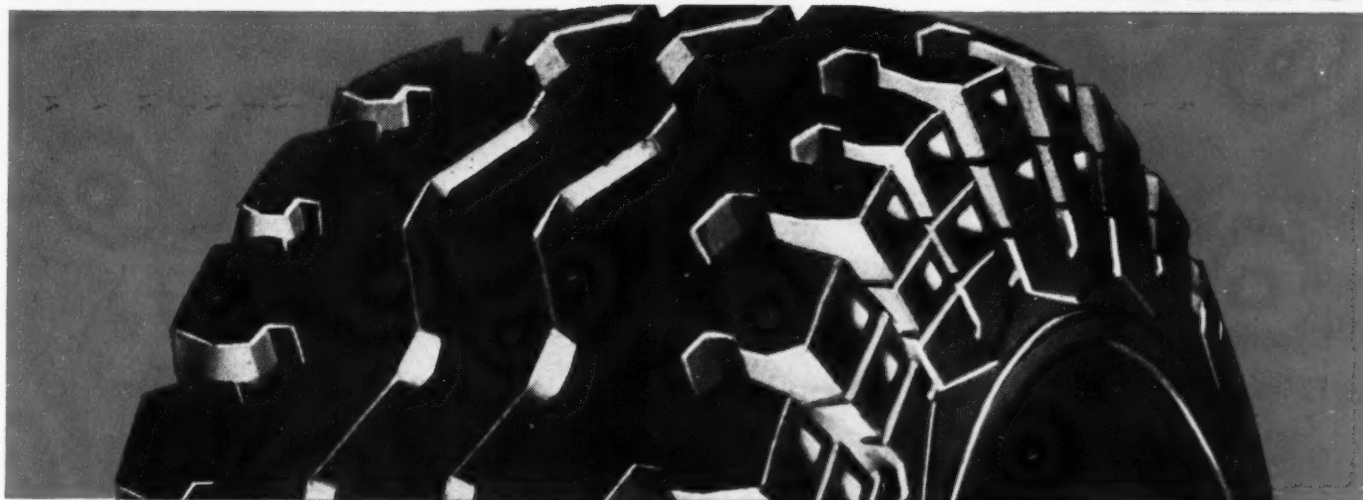
The carcass is the most important single factor in a tire. That's what makes Armstrong's Truck Tires with the new Rhino-Flex carcass the toughest, safest you can buy!

Developed for war—now Rhino-Flex Armstrongs are available for peacetime use. They're made with tougher, tighter twisted *rayon cord*. You get greater safety, more flexibility and cooler running.

Ask to see these new, super truck tires. Then compare! When you roll your truck on Armstrongs, you'll be convinced, once and for all—there's nothing better at any price.

Manufacturers of Quality Tires and Tubes since 1912 • General Offices and Plant—460 Elm Street, West Haven 16, Conn.

ARMSTRONG *Rhino-Flex* TIRES



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ACTUAL USABLE HORSEPOWER

Red Seal Power is TRU-RATED Power

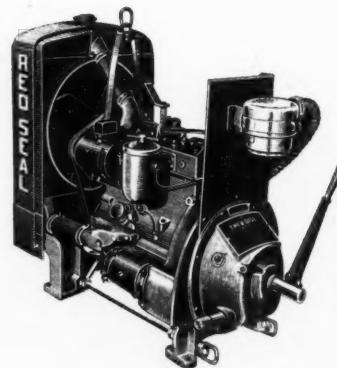
The power available at the crankshaft is the power that does the job. When you specify one of Continental's specialized industrial engines on the basis of Tru-Rated horsepower, the installation will be completely satisfactory.

Tru-Rated horsepower is the usable power delivered by the engine after deductions for such standard accessories as fan, generator and pumps. Figure your Red Seal applications on the basis of this Tru-Rated horsepower, and you'll have an engine that's really **built for the job**.

Continental Motors Corporation
MUSKEGON, MICHIGAN



45 YEARS' SPECIAL-
IZED EXPERIENCE
BUILDING ENGINES
FOR TRANSPORTATION,
INDUSTRY, AVIA-
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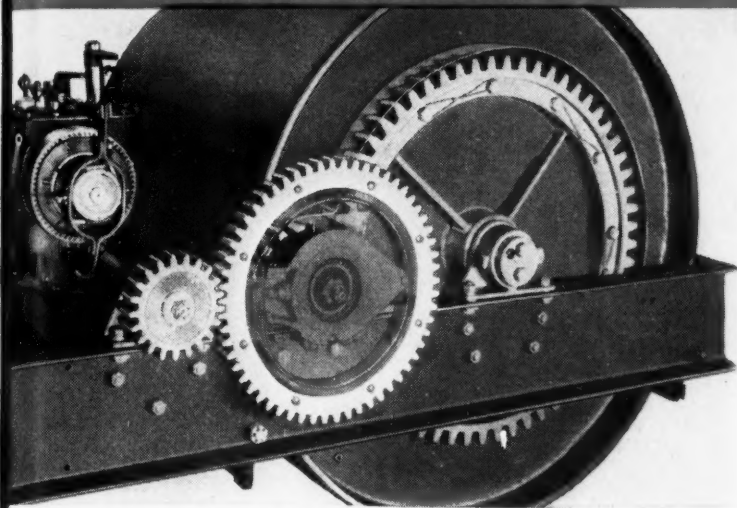
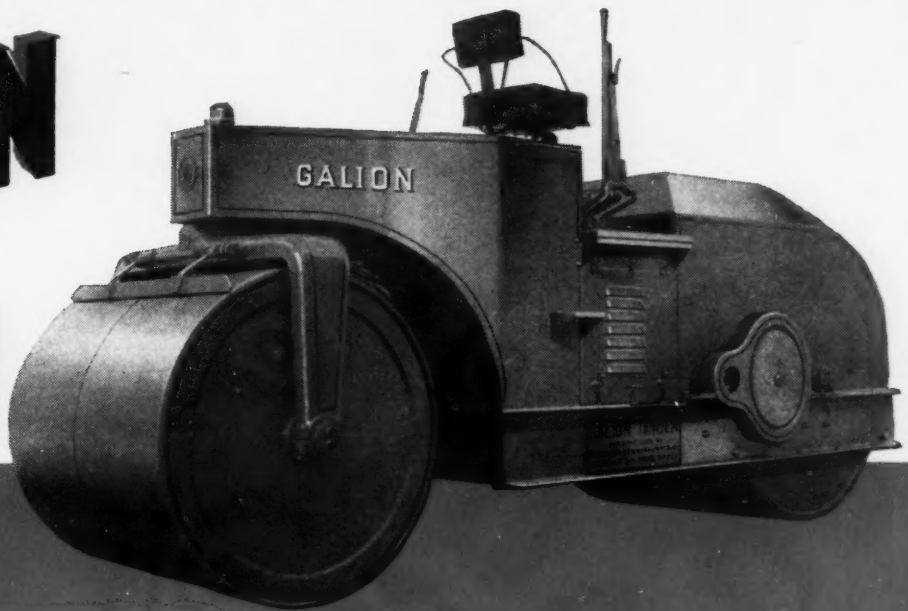


Y-400 OPEN POWER UNIT is one of the smaller Continental industrial engines. This is a 4-cylinder L-head series, just one of 33 specialized industrial models in the Continental line. Red Seal industrial engines are available for operation on gasoline, butane, natural gas, fuel oil or distillate. Continental also produces heavy-duty full Diesels with Cushioned Power combustion chamber.

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With
SPUR GEAR DRIVE



This high-quality double-reduction final drive construction is more costly--but well worth it, because all gears are machine-cut alloy steel--accurate and durable. All gears are protected from dirt and grit.

Three sizes--with a variable weight range from 5 to 14 tons.

OUTSTANDING FEATURES

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- Multiple plate clutches for positive action, long life, velvet-smooth operation.....
- Extra rugged construction throughout.....
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See your nearest GALION Distributor for complete information on this Variable Weight Tandem Roller.

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hydraulic
GRADERS • ROLLERS

ONE-MAN

... New small



Bowl, apron, tailgate and steering controlled by Tournatorque electric motors. Each operation finger-tip controlled from dashboard. The Tournatorque electric motor is a new type of AC motor with the lugging characteristics of DC motors. Tournatorque electric motors and generators are simpler in operation and maintenance than the electric starter on your car or truck.



This new Tournapull hauls through loose sand, mud, snow or ice that would stall any previous wheeled vehicle. The revolutionary Tournamatic differential is so designed to make one wheel pull 4 times harder than the other before it will slip. Most power is automatically supplied to the wheel on firmest footing.



Electric motor operates a steering gear on the yoke king-pin. This locks Tournapull and Carryall into a single unit and keeps rig traveling in desired direction, regardless of underfoot conditions. Operator merely pushes a button to turn . . . Tournapull continues on same course until operator again pushes control button for right or left turn. Selective 2-speed steering gives positive control.



Electric control, power steer, positive traction make the new Tournapulls easy for the operator. Finger-tip controls for steering and all Scraper operation from a single control panel take the labor out of operating . . . reduce operator fatigue. Comfortable spring-cushioned seat, plus shock-absorbing rubber tires are a few more reasons why operators like the new Tournapulls.

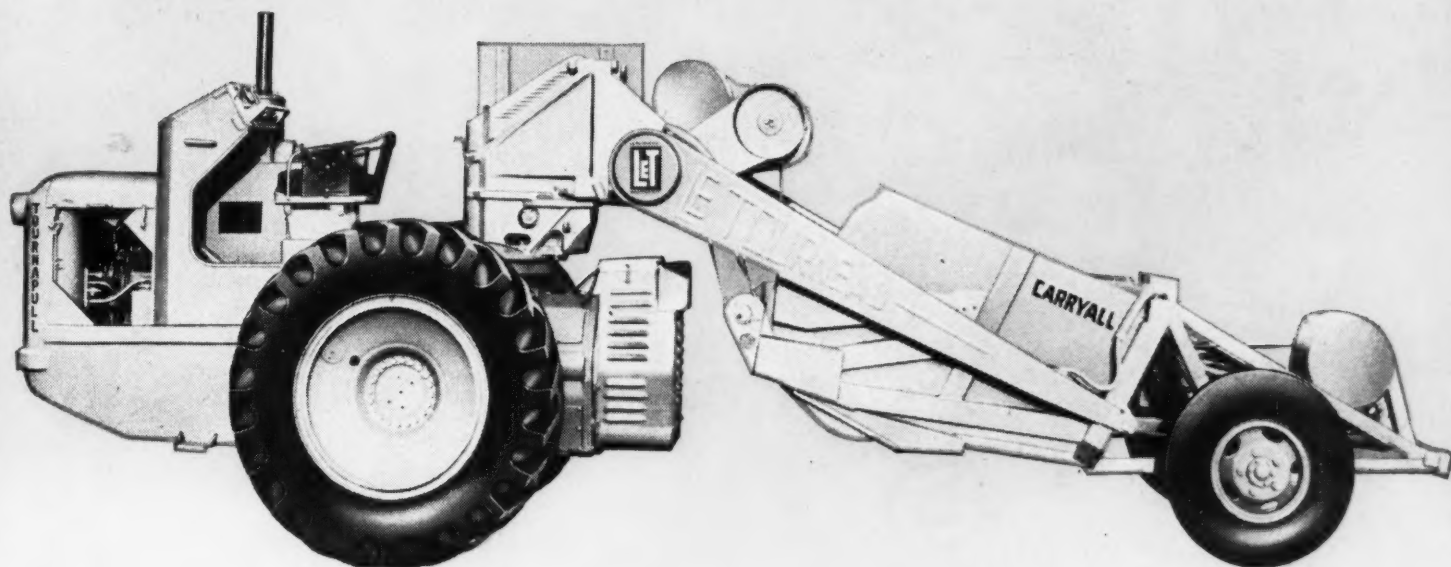
Tournapull Carryall — Trade Mark Reg. U. S. Pat. Off., C62 9



**See your Le Tourneau Distributor
NOW for complete information**

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CLEARs slides; fills washouts; loads, hauls and spreads surfacing; strips and works gravel pits; digs stockponds; fills lots; levels building sites; grades and surfaces driveways or access roads; builds small dams or levees. Travels fast over pavements or cross country . . . no trailer or haul equipment needed. Continuous mesh Tournamatic transmission . . . no delay for shifting gears. Fills tank at any filling station.

SELF LOADING

3.3 YARDS PAY DIRT

85 H.P. GASOLINE ENGINE

TIRES { 14:00x32 PRIMEMOVER
9:00x16 ON CARRYALL

WEIGHS 7½ TONS EMPTY

Production per hour

One-way haul	Yards per hr.
200'	48
400'	45
600'	42
800'	40
1000'	38
1500'	33
2000'	30
2500'	27
3000'	24
4000'	21
5000'	18

Above production figures based on average type scraper material, fairly level haul, good working conditions. Figures show production for 60-minute hour, one-man operation, no pusher.

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p con-
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S. Pat. Off., Can. O.

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LETOURNEAU
PEORIA, ILLINOIS



TOURNAPULLS

what



means to gold...



means to mixers!

● On gold jewelry, the mark "14K" establishes the buyer's confidence in the product . . . guarantees its gold content. That confidence is equally generated by the AGC rating plates on mixers and pavers.

AGC rating plates are the buyer's assurance of guaranteed capacity and performance. They eliminate the guesswork on estimates. Guaranteed capacity means that you can accurately estimate right down to the last yard . . . a mighty important factor on those "close ones" to come.

Don't guess! Be sure by standardizing on equipment wearing the AGC rating plates.



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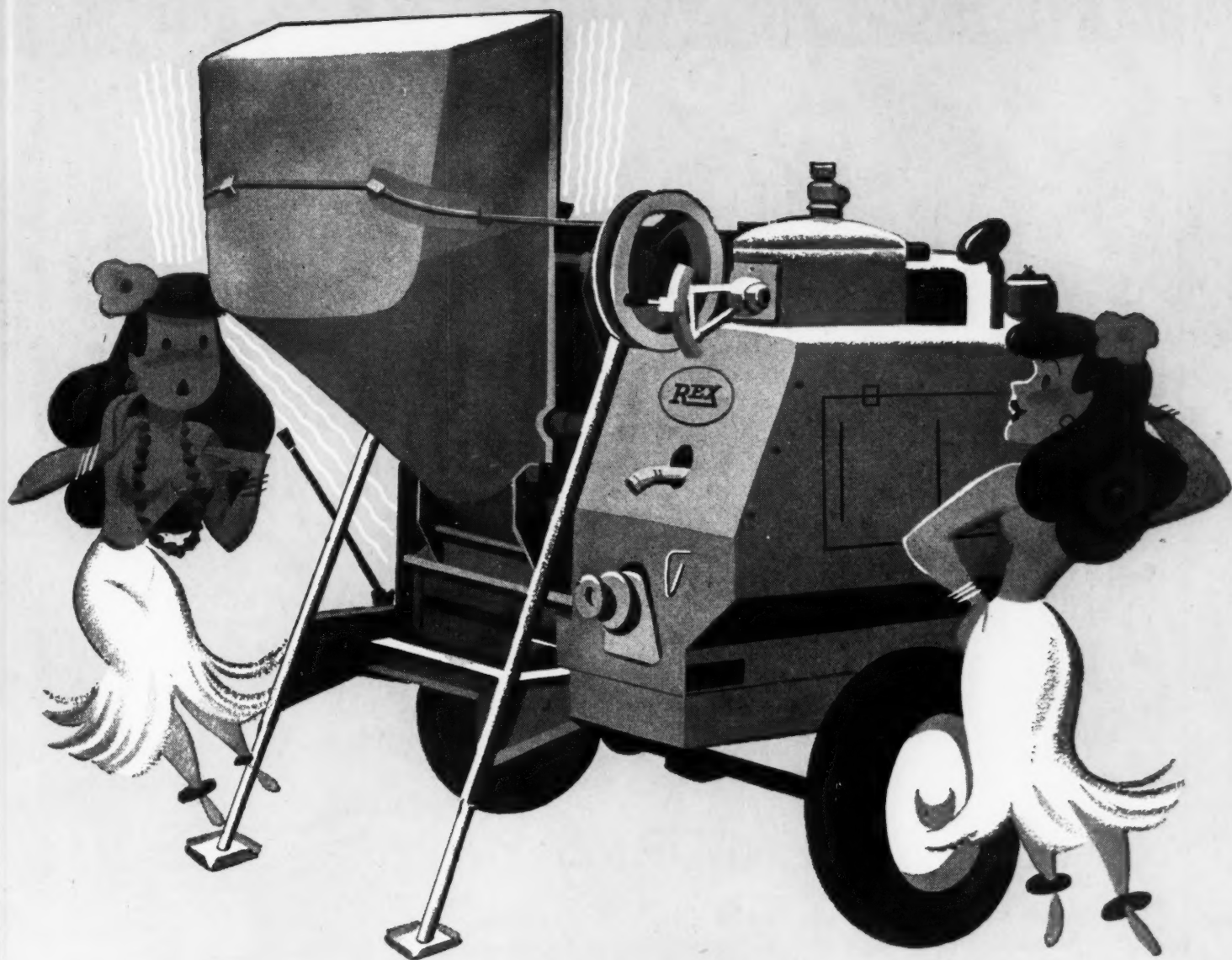
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"Wish we could 'shimmy' like that Rex Skip"

The Rex "Shimmy Skip" is in a class by itself when it comes to getting the batch into the drum faster! You don't have to pound it to get all the batch to drop. The "Shimmy Skip" provides just the right amount of snappy, shaking action... 304 sharp impacts per minute... for a clean, quick, time-saving charge that adds up to more batches per day... more yards per job... more profit for you.

The Rex "Shimmy Skip" is actuated by wedge-shaped lugs on the drum... the heaviest part of the

mixer. As the drum rotates, these lugs engage shaker rollers on the skip, causing the "shimmying" action. There are no cams, gears, delicate adjustments, or fast wearing parts. There is no strain or extra wear on the skip... no extra burden on the transmission. Skip itself is sturdily built of heavy-gauge steel for maximum service life.

For all the facts, see your Rex Distributor or write for a copy of Bulletin No. 480. Chain Belt Company, 1664 W. Bruce St., Milwaukee 4, Wis.

CHAIN BELT COMPANY of MILWAUKEE

REX

CONSTRUCTION MACHINERY



ATLAS LABOR-*SAVING* *SPEED* FORMS



**SPEED
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WITH
**LABOR SAVING
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WHEN LEADING Architects, Engineers and Builders Everywhere use and recommend the Atlas process of Concrete Form Construction again and again on job after job, you can be sure of this—it is doing a better job at a worthwhile saving in time, material and money compared with the forms previously used. Savings of 25 to 50% are not unusual with Atlas SPEED Forms.

A Designed Steel Form with strength built in—good for re-use indefinitely without repair. Easy to assemble with non-clog wedge bolts—only a hammer is needed . . . a particular advantage where skilled labor is scarce, for semi-skilled or unskilled labor can set, move and strip these new forms easily and rapidly.

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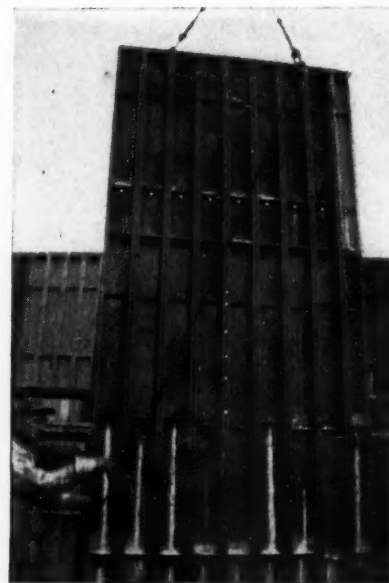
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**America's Most Complete Line
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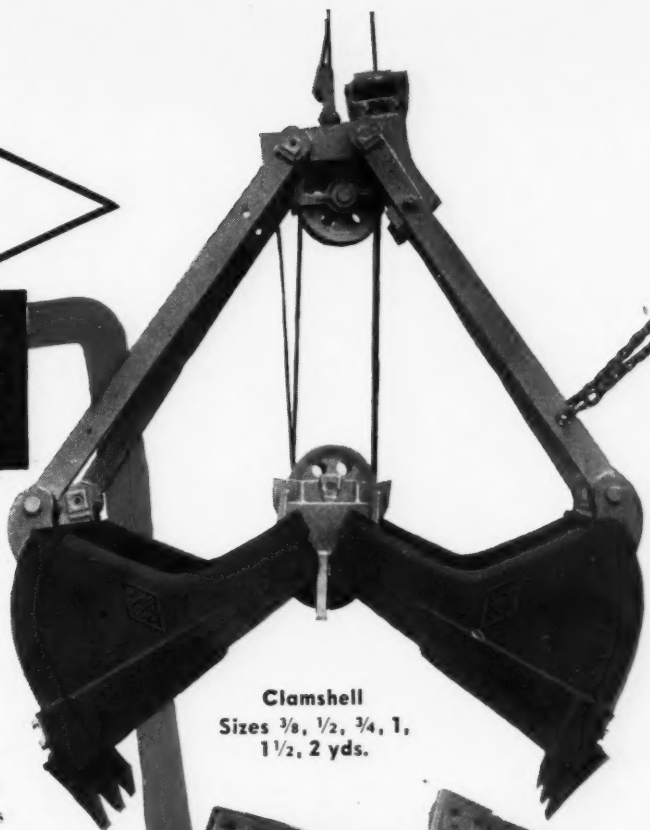
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developing tensile strength up to 120,000 p.s.i. This
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strength for hard service and allows wide set corner
teeth for easy entrance in digging. Volume produc-
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On the 1/2 yd. and 3/4
yd. Shovel and Pull-
shovel Buckets, all
teeth are interchange-
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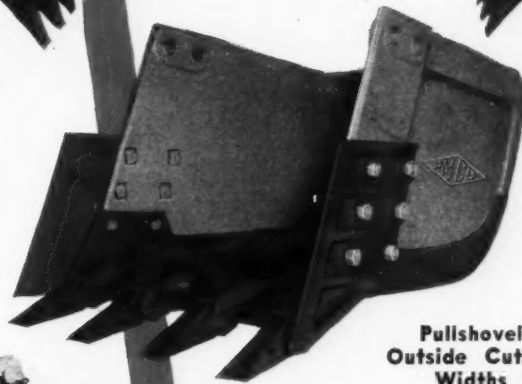


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See your shovel man or
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about PMCO Buckets
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Sizes 3/8, 1/2, 3/4, 1,
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Widths
26"—31"—36"—
39"



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All Purpose Sizes 3/8 to 2 yds.
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Sizes 3/8 to 18 yds.

"Quality Since 1880"

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The BIG Demand is for Tiger Brand

MISSISSIPPI WAGONS

cut former hauling costs for
each of these typical users ➔

The actual experience of owners is the best indication of what Mississippi Wagons can do to make and save money for YOU.

Owners such as those listed at right know from experience that Mississippi Wagons deliver cheaper yardage, ON or OFF the highway.

Whatever your hauling job or jobs, it will pay you to investigate the greater economy, efficiency and versatility of Mississippi Wagons.

Ask users in your own locality. Satisfy yourself that THEY are satisfied with the performance of "The World's Most Modern Hauling Unit." Then see your nearby Mississippi Wagon distributor—soon!

M-R-S MANUFACTURING CO.

Flora and Jackson, Mississippi, U.S.A.

EARTHMOVING CONTRACTOR

Four MISSISSIPPI WAGONS purchased in July 1944 by Morris & Young, contractors of Baton Rouge, La., have moved 605,964 yards of dirt, gravel and other materials in approximately 21,004 hours of operation, on a variety of jobs with hauls ranging from 1/2 mile to 10 miles. E. R. (Ned) Morris praises Mississippi Wagons for their "low maintenance cost and their suitability for both on and off the highway use."

PUBLIC ROAD OFFICIAL

Columbia County, Arkansas, bought its first MISSISSIPPI WAGON in May, 1945. County Judge O. W. Taylor found that it hauled gravel at half the cost of trucks, quickly bought another one to help maintain his County's 1000 miles of gravel roads. His yard-mile cost on hauls averaging 14 miles one way is under 3.6¢. No wonder Judge Taylor says "the Mississippi Wagon is the most economical and satisfactory gravel-hauling unit."

SAND AND GRAVEL PRODUCER

In 865 hours of operation for the Lutesville Sand & Gravel Co., Black Rock, Ark., two MISSISSIPPI WAGONS hauled 90,000 yards of sand and gravel, and ran up a total repair parts bill of exactly \$6.00! This, while hauling for 50% less per ton than the six 1 1/2-yard dump trucks previously used. "Our plans for the future include more Mississippi Wagons," declares General Manager W. T. Kyger.

BRICK MANUFACTURER

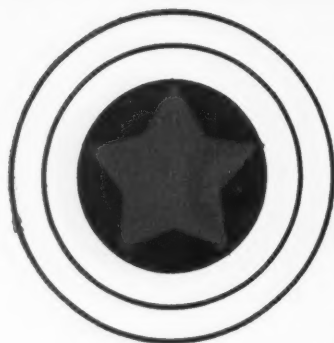
Hauling over rough roads with numerous stops for crossings, one MISSISSIPPI WAGON owned by Price-Dunham-Fenet Brick Co., Lake Charles, La., moved 52,000 yards of clay on a 1 1/2-mile one way haul. Despite the severe punishment taken, this unit has cost only 1 1/4¢ per yard for repairs. R. W. Price, vice-president, says: "We think that no other machinery could take its place and give economical service day after day."



★
**MISSISSIPPI
WAGON**

★ *The World's Most Modern Hauling Unit*

The New



RED STAR SCORES AGAIN

A truly beautiful piece of precision equipment, yet sturdy and powerful -- designed to handle heavier work in greater capacity -- faster, more accurate and with greater facility. While retaining all the exclusive features of its famous Red Star predecessors, the Model 50-A embodies additional engineering refinements and improvements in the attractive and practical cabinet base -- the movable table and control panel -- the column base and its column automatically keyed and locked up -- the rugged arm that supports the center suspended track -- the newly designed yoke -- motor and guard -- all resulting from careful study of practical requirements and experience in the field.

Five exclusive performance advantages found only in the Multiplex:

- **LEFT HAND MITERS** -- in the same 100% range as the conventional right hand miters.
- **MOVABLE TABLE** -- permits full usable working travel of the cutting head in any crosscut, miter or rip position.
- **CENTER SUSPENDED TRACK** -- is responsible for its greater capacity and adaptability.
- **BALL BEARING ASSEMBLY** -- has self-cleaning balls running on nitralloy rods for ease of cutter head operation.
- **AUTOMATIC RECORDING RIP SCALES** -- provide an accurate and convenient means for measuring width of rip.

For greater production and operation economy, investigate the New Multiplex Model 50-A. No other saw can equal its performance.

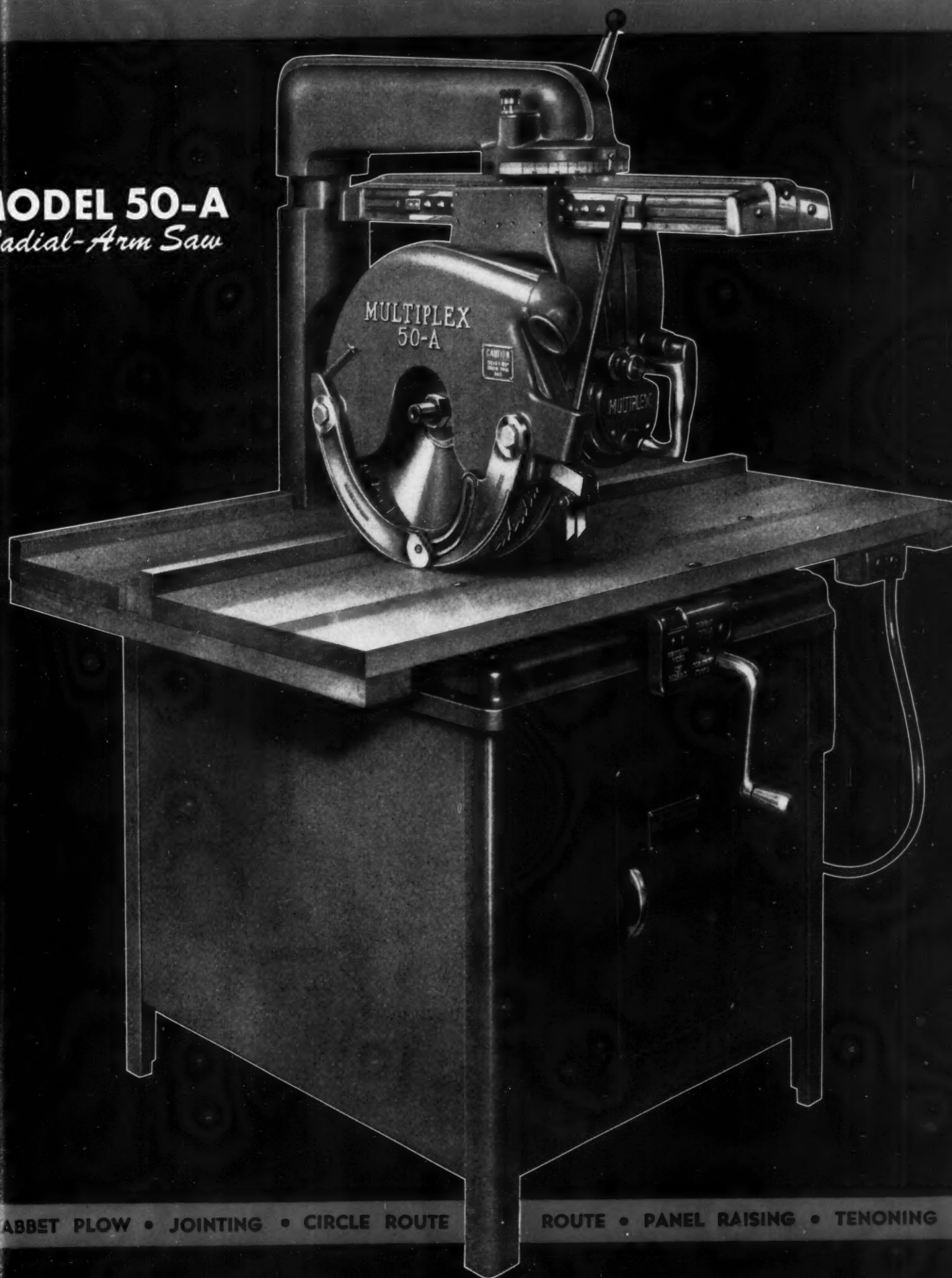
Write today for full information and name of nearest dealer.

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MULTIPLEX

N MODEL 50-A *Radial-Arm Saw*



• SHARPENING • RABBET PLOW • JOINTING • CIRCLE ROUTE

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Why not let this Seasoned Experience

1 CORRECT LUBRICATION

for every part of every machine you operate

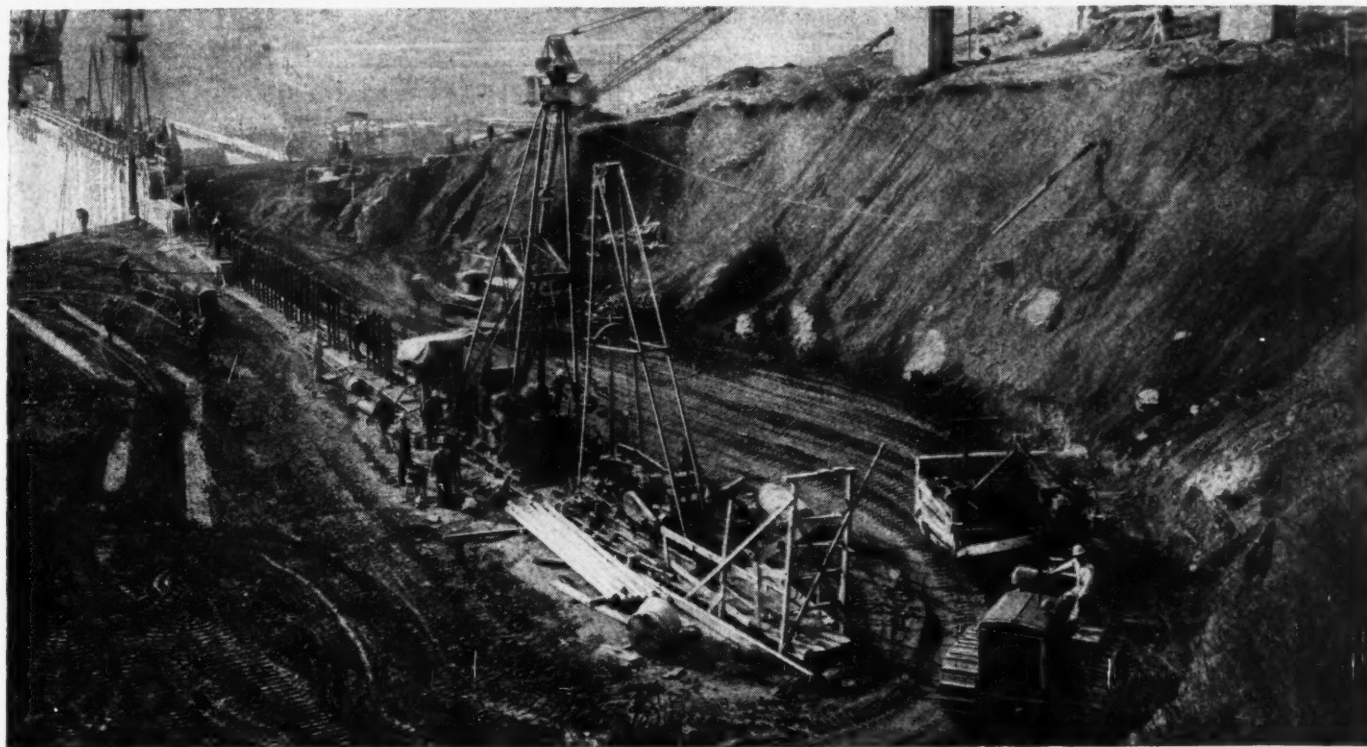
YOUR Socony-Vacuum Representative recommends oils specially designed to keep Diesel and gasoline engines clean, protect vital parts against corrosion. He supplies scientifically correct lubrication for all types and makes of excavating and construction equipment; top-quality lubricants that meet toughest gear and bearing requirements...guard against friction, heat, wear.

You can get the *correct* lubricants for every need from a *single* convenient source!



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SPEED YOUR PAY-JOB, TOO!..



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HERE ARE just a few of the ways we help you ease tight work schedules, meet and beat contract deadlines:

1. Supply you with tested maintenance schedules adapted to *your* equipment, *your* set-up.
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3. Provide information on the Do's and Don't's of Correct Lubrication.

4. Supply the requirements for oils and greases for all of your equipment.
5. Help simplify lubricant inventory problems.

★ ★ ★

On the job, in the shop and in the office . . . all through your operation, this service saves valuable time! See your Socony-Vacuum Representative today for full details.

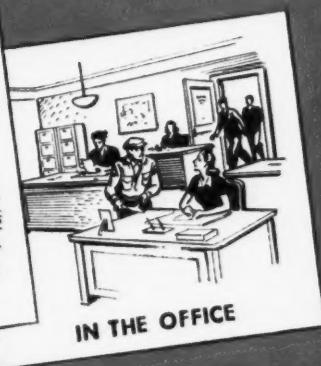
SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: Magnolia Petroleum Company, General Petroleum Corporation



IN THE FIELD



IN THE SHOP



IN THE OFFICE



*a thousand
and one*

MACWHYTE WIRE ROPES

...all job-proved...assure you the correct rope for your equipment

When you use the correct wire rope, both the rope and your equipment last longer, cost less to operate. Macwhyte consulting engineers will check your equipment and recommend the wire rope specifically engineered for your job. Ask your Macwhyte distributor, or write Macwhyte Company.

MACWHYTE WIRE ROPE

Manufactured by Macwhyte Company
2941 Fourteenth Ave., Kenosha, Wis.

Mill Depots: New York • Pittsburgh • Chicago
Minneapolis • Fort Worth • Portland • Seattle
San Francisco • Los Angeles • Distributors
throughout the U. S. A. and other countries

Make
MACWHYTE
your headquarters for
WIRE ROPE
and SLINGS

MACWHYTE PREFORMED AND NON-PREFORMED
INTERNALLY LUBRICATED WIRE ROPES . . MONARCH
WHYTE STRAND Wire Rope . . . Special Traction Elevator Rope
...Stainless Steel Wire Rope...Monel Metal Wire Rope...Galvanized
Wire Rope. . . Atlas Braided Wire Rope Slings, Hi-Fatigue Aircraft
Cables, Assemblies and Tie-Rods. Catalogs on request.

Your best bet
for **TOUGH** Jobs



INTERNATIONAL Diesel Crawlers



*Tune in James Melton on
"Harvest of Stars" every
Sunday, NBC Network.*

Tough earth-moving jobs move along on schedule when International Diesels haul the scrapers. No pushers or snatch tractors needed! Even on hardpan which track shoe grousers won't penetrate, Internationals have the lugging ability to load their scrapers to the brim!

Quick starting, unbeatable operating

economy and unrivaled dependability make International Diesel Crawlers your best bet for licking tough earth-moving jobs fast. See the International Industrial Distributor near you for the facts about these tractors and their matched equipment, also the service facilities and stock of parts he maintains.

Industrial Power Division

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue • Chicago 1, Illinois

INTERNATIONAL POWER
CRAWLER AND WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS

NOW! The New BUCYRUS-ERIE

P-25 POWER CONTROL WINCH

WITH SMOOTH, POSITIVE
PLANETARY DRIVE
PROVED IN SERVICE

NOW IMPROVED
FOR EVEN BETTER PERFORMANCE

For TD-14
and TD-18
International
Tractors (Adapter
required for
other
tractors).

"Cushioned" Clutch and brake action with big drums and bands. Eliminates sudden jerks and shocks. Saves rope, tractor and equipment. Cuts lost time.

External type drums and bands lick the heat problem before it starts. Bands ventilate naturally, cool rapidly, last longer . . . are easily accessible.

Interchangeable, reversible bands. Same bands fit all four drums. Reversible for extra wear. Simple, single-point band adjustment.

Swinging fairleads, large-diameter sheaves, long lead angle — all lengthen cable life, save time and money.

Non-slip wedge and socket cable anchor is accessible, easy to set, safe.

Oil-level sight, convenient oil fill and single, oil-bath lubrication assure simplified, positive lubrication for sustained efficient performance.

Anti-friction bearings. All rotating parts are mounted on anti-friction bearings for extra smoothness and durability.

Single-lever control of brake and clutch means easy handling, positive action, smooth operation. Automatic interlocking prevents dropping load. "Free" position for reeving up, installing new cable. Adjustable levers held rigidly by wide spaced double bearings.

It will pay you to see your International tractor distributor for complete information on the revolutionary Bucyrus-Erie P-25 Planetary Drive Power Control Winch.

**BUCYRUS-ERIE
COMPANY**
SOUTH MILWAUKEE, WIS.

SEE YOUR

INTERNATIONAL INDUSTRIAL TRACTOR DISTRIBUTOR

6247C

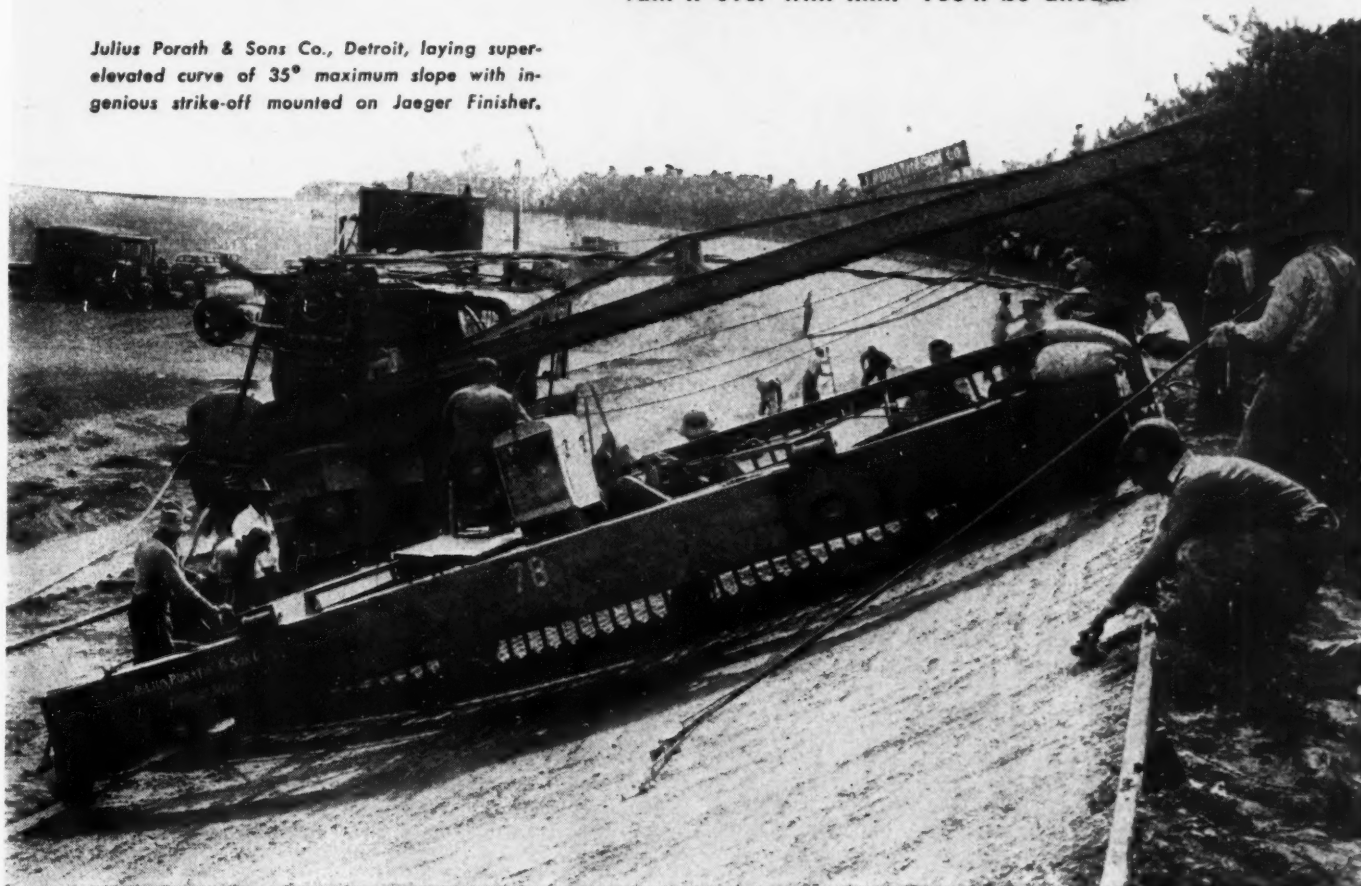
When you buy paving equipment today, make sure it will equip you to meet the problems that are coming — entirely different specifications, new designs of pave-

JAEGER EQUIPS YOU

for modern paving work

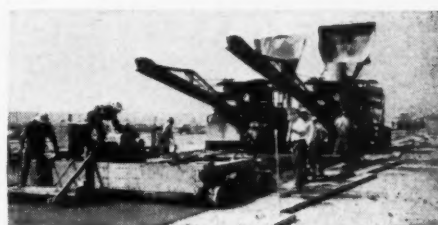
ments and paving materials presenting problems of remixing, of internal deep vibration, of laying new contours, of finishing new types of concrete — and always the problem of keeping your job costs below your estimates. Your Jaeger distributor knows the most modern paving machinery and its possibilities. Talk it over with him. You'll be ahead.

Julius Porath & Sons Co., Detroit, laying super-elevated curve of 35° maximum slope with ingenious strike-off mounted on Jaeger Finisher.



◆ Jaeger Screw Spreader remixing as it places stiff material.

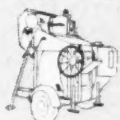
Jaeger High Speed Finisher sets fast pace for two big pavers. ◆



THE JAEGER MACHINE COMPANY, Columbus 16, Ohio
 REGIONAL OFFICES: 8 E. 48th St. NEW YORK 17, N. Y. 226 N. La Salle St. CHICAGO 1, ILL. 235-38 Martin Bldg. BIRMINGHAM 1, ALA.



"AIR PLUS"
Compressors



"SPEEDLINE"
Concrete Mixers



"SURE PRIME"
Contractors Pumps

JAEGER

Engineered EQUIPMENT

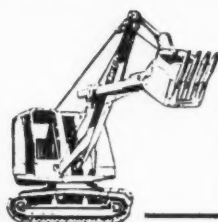
"DUAL-MIX" TRUCK MIXERS, AGITATORS — HOISTING
 ENGINES, SELF-RAISING TOWERS — CONCRETE AND
 BITUMINOUS PAVING EQUIPMENT



*Keeps 'em
rolling...
AT CALIFORNIA
COKE YARD*

Is loading trucks quickly and profitably one of your material handling problems? This BAY CITY CraneMobile loads 22 tons of coke from pile into trailer-trucks in from ten to fifteen minutes at the yards of the General Petroleum Co., Torrance, California. It's a Model 180T-60 Crane-Mobile, equipped with a 1-yard bucket at the end of the 50 ft. boom which permits fast, easy loading of railroad cars as well as trucks. There's a BAY CITY CraneMobile or Crawler Crane to speed and simplify your material handling and excavating jobs. See your nearest BAY CITY dealer or write direct. BAY CITY SHOVELS INC., Bay City, Michigan.

BAY CITY



SHOVELS • DRAGLINES
CRANES • HOES • CLAMSHELLS

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from $\frac{3}{8}$ to $1\frac{1}{4}$ yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.



L-47
45-LB. CLASS DRILL
WITH 55-LB.
PERFORMANCE

Less Power To
DRILL MORE FOOTAGE
with

SULLIVAN

SILVER STREAK

**CADMIUM PLATED
ROCK DRILLS**



L-57
DRILLS TO
15-FEET
UNDER
AVERAGE
CONDITIONS

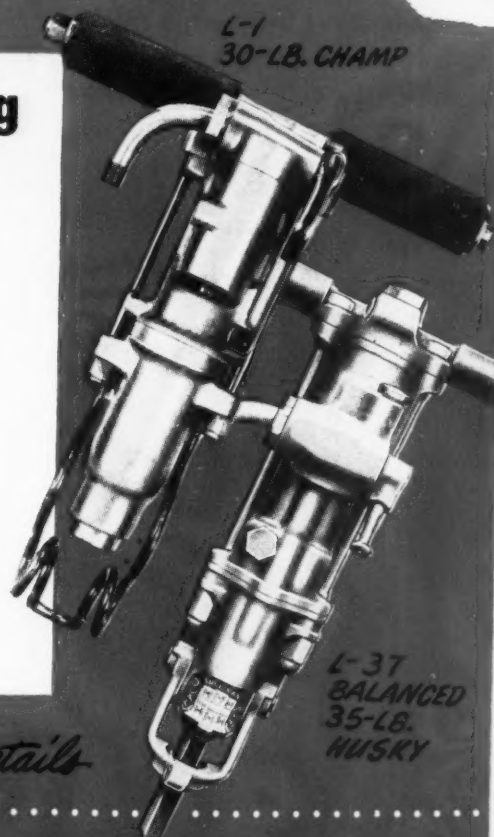
**Cadmium Plating
means**

LONGER LIFE

**BETTER
LUBRICATION**

NO RUSTING

**PREVENTION
OF RUCKING**



L-1
30-LB. CHAMP

L-37
BALANCED
35-LB.
HUSKY



Write for Bulletins Giving Full Details

*Consult a
Joy Engineer*

**SULLIVAN DIVISION
JOY MANUFACTURING COMPANY**

GENERAL OFFICES: HENRY W. OLIVER BUILDING

PITTSBURGH, PENNSYLVANIA

WAD 6333



Extending 4-lane Parkway in N.Y. State

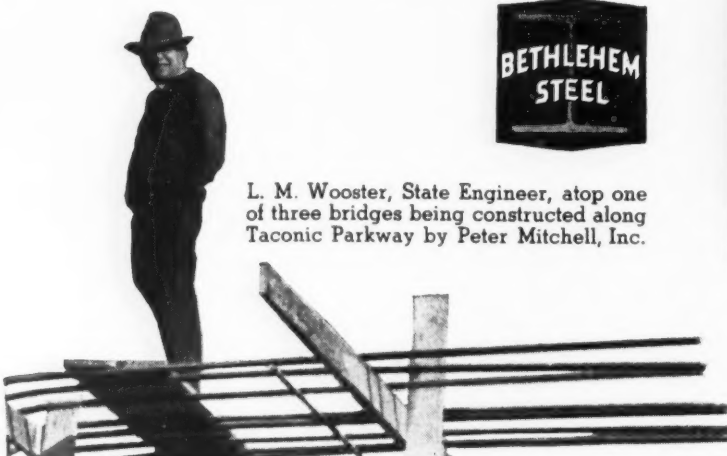
Paving gets under way at Freedom Plains, southernmost portion of new highway. Bridge approaches, of reinforced concrete construction, called for 10,800 sq yd of Bethlehem Bar Mats.

Long popular because of its scenic beauty and its complete lack of grade crossings, New York's express highway through the heart of Dutchess County—the Taconic State Parkway—is now being extended from Freedom Plains to Lafayetteville, a distance of approximately 27 miles.

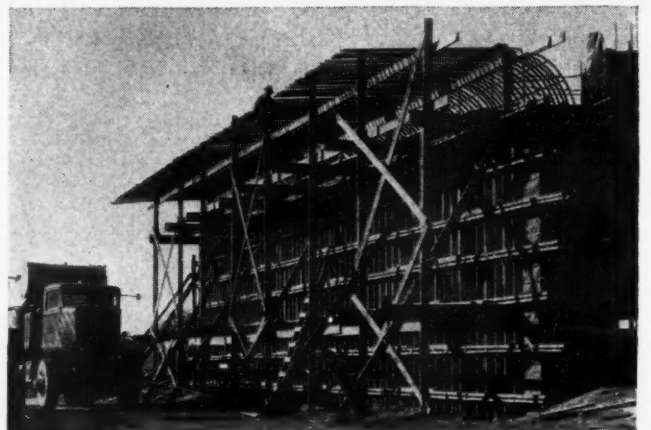
These photographs, taken near Freedom Plains, show construction activity on a 7.8-mile stretch of the new road being built by Peter Mitchell, Inc., of Greenwich, Conn. Reinforcing bars, bar mats, welded fabric and dowels were supplied by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation*



L. M. Wooster, State Engineer, atop one of three bridges being constructed along Taconic Parkway by Peter Mitchell, Inc.



Of rigid-frame concrete-arch construction, stone-faced, and with a 48-ft span, bridge will carry heavy parkway traffic.



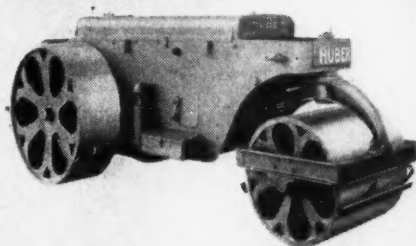
Close-up of Bethlehem Reinforcing Bars in bridge structure. Bridge required 72,500 lb of these sturdy bars.

STEEL FOR HIGHWAYS

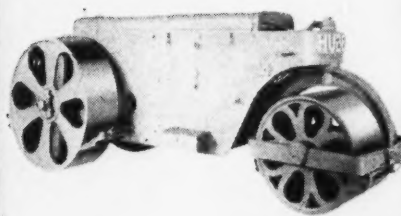
Road Joints • Reinforcing Bars • Bar Mats • Guard Rail • Tie-Rods
Guard Rail Posts and Brackets • Wire Rope and Strand • Spikes
Hollow Drill Steel • Fabricated Structural Steel • Bolts and Nuts
Sheet and H-Piling • Timber Bridge Hardware

THERE'S MORE TO HUBER ROAD MACHINERY THAN MEETS the EYE

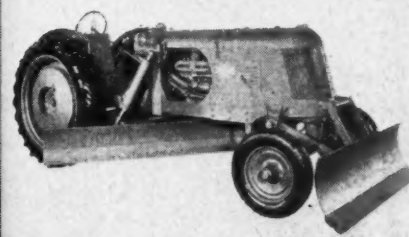
There is Huber's many years of know-how in building dependable, speedy, and long lasting 3-wheel and Tandem Rollers, which has played such a vital part in the outstanding success of the Huber one-man-operated Maintainer. There is Huber's expert knowledge of road machinery application and the needs of the vast road building fraternity. Then there is Huber's network of strategically located Distributors who know the local picture and who augment Huber's sincere desire to serve. All of these are behind every piece of Huber Road Machinery you buy. And that is why you can buy Huber Rollers and Maintainers with confidence.



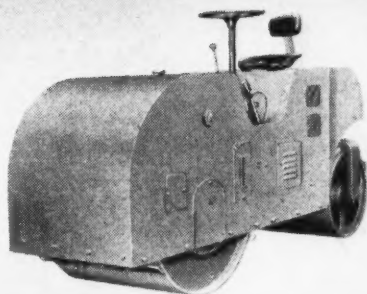
● HUBER 5 and 6 TON — 3 Wheel Roller



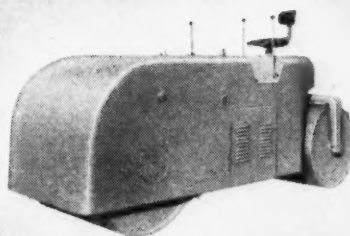
● HUBER 8 TON — 3 Wheel Roller
Also built in 10-12 Ton Size



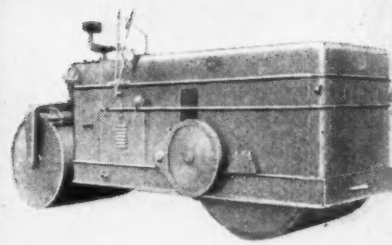
● HUBER — Maintainer



● HUBER 3-4 TON Variable Weight Tandem Roller



● HUBER 5-8 TON Variable Weight Tandem Roller



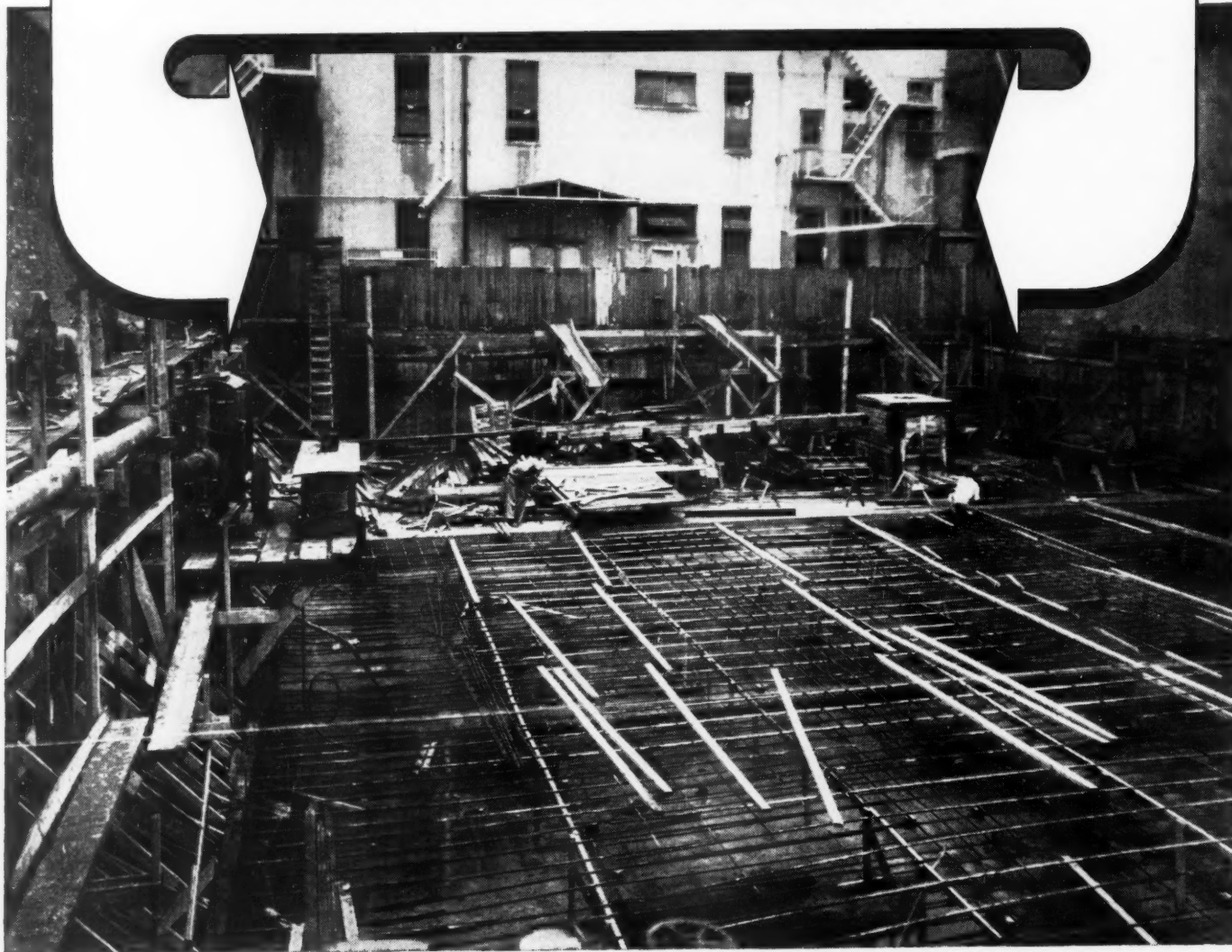
● HUBER 8-12 TON Variable Weight Tandem Roller

THE **HUBER** MFG. COMPANY • MARION, OHIO, U. S. A.

HUBER

3 Wheel • Tandem
ROAD ROLLERS
and
MAINTAINERS

PUMPING IN CLOSE QUARTERS— A MORETRENCH SPECIALTY



This is the sort of job that requires the careful planning, the expert supervision for which MORETRENCH is famous.

Surrounded on three sides by old buildings, excavation for a new building had to be made in wet fine sand with

clay layers. Many and varied were the problems encountered, but the job was done—"in the dry"—in perfect safety.

Hard or easy, large or small, we'll welcome the opportunity of quoting on your wet work.

Catalog Sent on Request

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EFFICIENCY BRIGADE

"Caterpillar" builds the units you need to zone equipment for lowest costs on earth



1 Track-type tractors for "push"-distance earthmoving.



2 Track-type tractors for loading and pulling scrapers on medium hauls.



3 Wheel-type tractors for high-speed long hauls. —plus motor graders for finishing work.

HERE'S a typical example of matched equipment zoned to the job—the ideal way to go sailing through an operation with minimum lost motion and maximum time and money saving. It's a traffic bypass project (Los Angeles) to which Peter Kiewit Sons Co. (one of America's largest contractors) assigned a brigade of equipment that included two sizes of "Caterpillar" Diesel Tractors, a "Caterpillar" Diesel No. 12 Motor Grader—with scrapers, bulldozers and tampers to fit their power and controls.

Other important "accessories" you don't see—but no doubt know about—are proved "Caterpillar" quality, dependability and operating economy . . . plus dealer service that is widely regarded as the most complete, efficient and best equipped of its kind.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS



CATERPILLAR DIESEL

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

—for lowest costs on earth

GOOD-BYE TO FINAL DRIVE PROBLEMS!

Hypoid Gearing is here! . . . in new Timken "3 for 1" Axles!

Not in just one or two new axles, but in a complete new line of Advanced-Related Design—in a complete range of capacities!

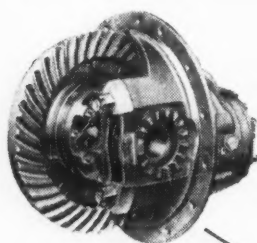
In each capacity you get a choice of the three final drives shown below, each interchangeable with the others in the same axle housing—using the same axle shafts.

Now—there is absolutely no reason why every truck owner can not have the right

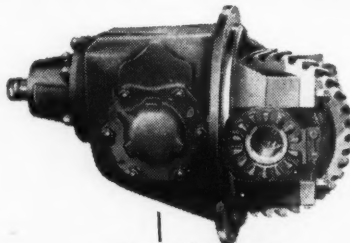
axle and right final drive for the job. Now—every truck from medium to heavy-duty capacity can have the *proved economy, durability and dependability of Timken Hypoid "Hy-Performance" Gearing.*

To be certain of these advantages, ask about the axles when you buy trucks. Specify Timken "3 for 1," the newest and most modern line of axles in the industry!

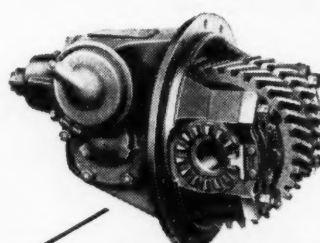
THE TIMKEN-DETROIT AXLE CO. • DETROIT 32, MICH.
WISCONSIN AXLE DIVISION • OSHKOSH, WIS.
TIMKEN AXLE BRAKE DIVISION • DETROIT 32, MICH.



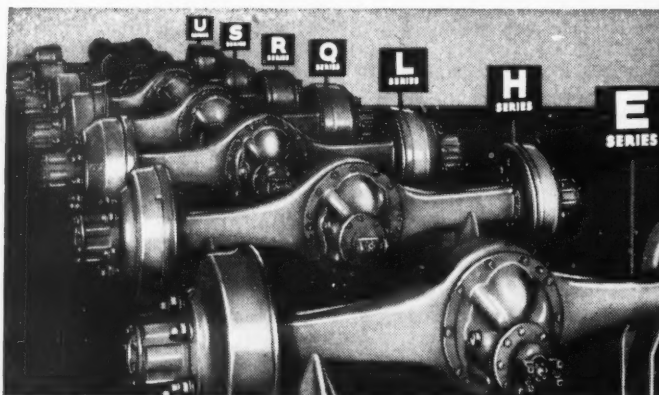
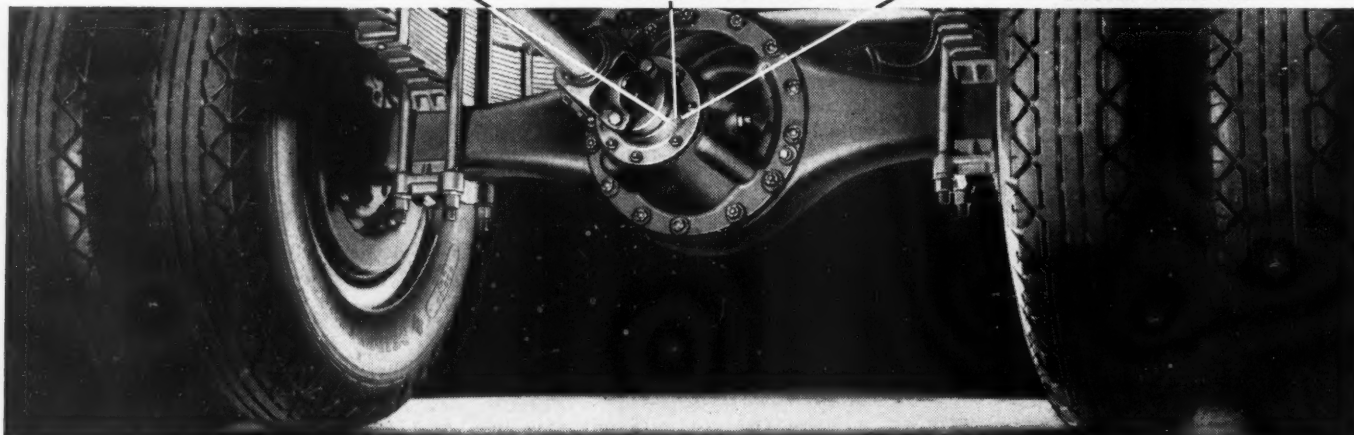
✓ Hypoid Gear



✓ Hypoid-Helical Double-Reduction



✓ 2-Speed Hypoid-Helical Double-Reduction



New Alphabet Series of Timken "3 for 1" Axles featuring Hypoid Gearing for all medium, light-heavy, and heavy-duty vehicles. GVW ratings from 14,500 to 33,000 lbs. GCW ratings from 29,500 to 58,000 lbs.

NEW TIMKEN *3 for 1* AXLES

- 1 Seven new related series of axles providing a complete range of capacities for all medium, light-heavy and heavy-duty requirements.
- 2 Three optional types of final drive in each capacity, each interchangeable in the same axle housing using the same axle shafts.
- 3 Wide range of optional final drive gear ratios.
- 4 New Advanced-Related Design, with exclusive Timken Hypoid "Hy-Performance" Gearing throughout the entire line.



"99-H" POWER GRADER—Exclusive All-Wheel Drive and All-Wheel Steer plus High-Lift Blade, Extreme Blade Reach and Completely Reversible Blade guarantee superlative performance on every job.



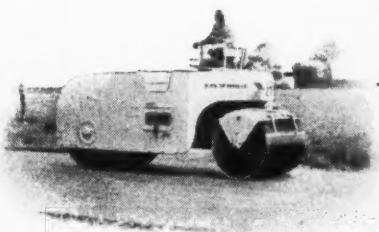
NO. 55 MOTOR GRADER—Engineered to handle a wide variety of maintenance and light grading jobs quickly, easily, and economically. May be had with scarifier attachment.



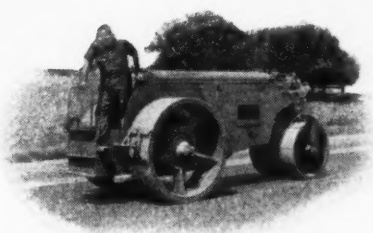
BADGER SHOVEL—Convertible to crane, drag-line, piledriver, trench hoe, and skimmer. $\frac{3}{4}$ -swing design has many operating advantages.



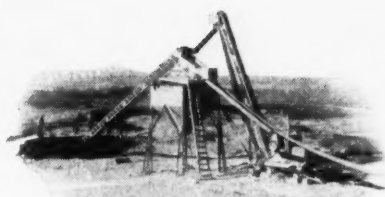
MODEL "40" PATROL SWEEPER—Available with right-hand or left-hand gutter broom, or both. Rear broom throws dirt directly into hopper. May be had with Leaf Broom attachment.



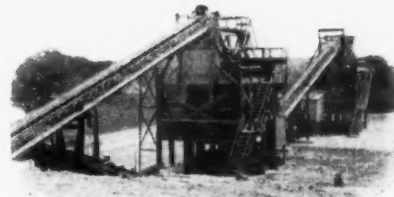
TANDEM ROLLERS—Made in 2 sizes—5 to 8-Ton and 8 to 10 $\frac{1}{2}$ -Ton. The variable weight feature enables one machine to handle a wide variety of work.



3-WHEELED ROLLERS—Made in sizes ranging from 6 to 12 tons. Gasoline or diesel engines. Hydraulic power steer. Hydraulic scarifier attachment.



PORTABLE CRUSHING PLANTS—Range in size from that illustrated to the magnificent Triple Unit Plant with its Primary, Secondary and Reduction Crushers.



STATIONARY CRUSHING PLANTS—Engineered to meet individual requirements; employing any desired combination of Crushers, Conveyors, Screens and Bins.

BUILT *to* OUTPERFORM

"Plus values" built into every Austin-Western machine . . . exclusive features that save time and money by getting the job done better and quicker . . . engineering experience dating back to the first crude Austin-Western tools of 1859, culminating in the new Power Grader and Street Sweeper models shown on this page, and other new models not yet in production.

Your nearby A-W Distributor is an especially good man to know in these days of postwar changes and developments.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.

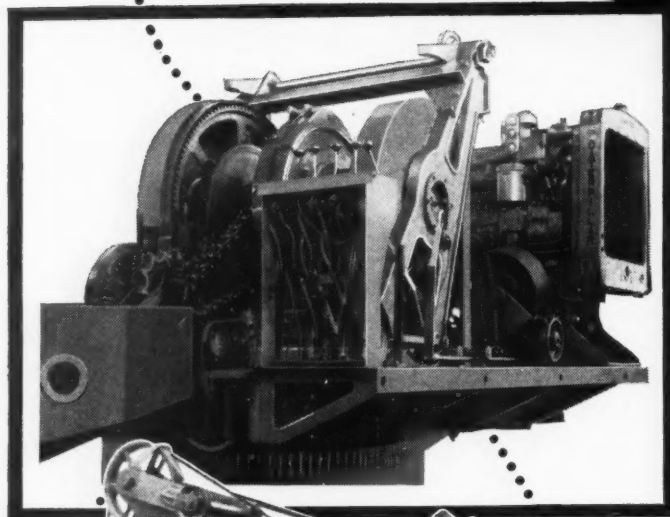
BUILDERS OF ROAD MACHINERY
Austin Western
SINCE 1859

UNIT Cast Steel CONSTRUCTION

FOR MAXIMUM STRENGTH • PERMANENT SHAFT ALIGNMENT • MORE EFFICIENT ARRANGEMENT OF MACHINERY

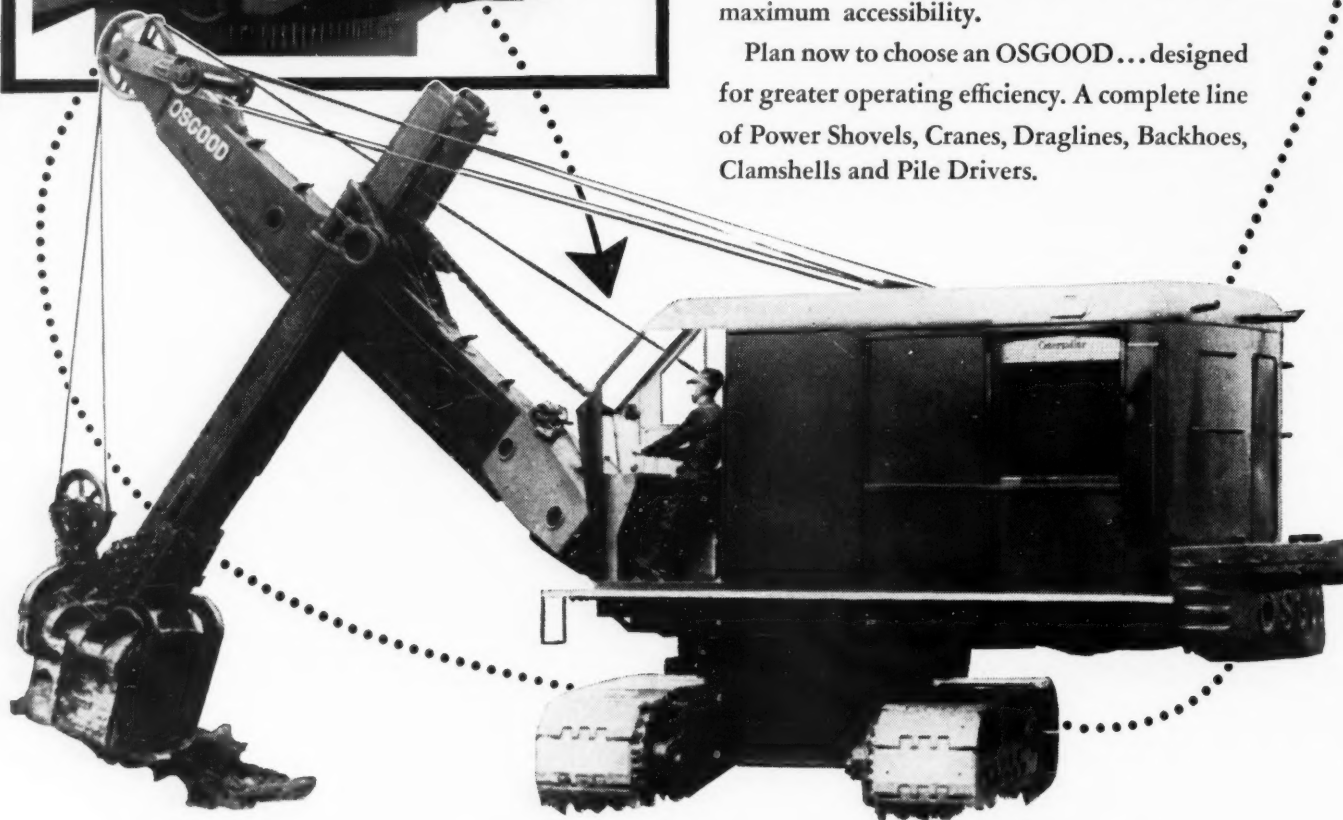
ON AN

OSGOOD



The deck of an OSGOOD is a single, full length steel casting, acting also as support for the engine and counterweight. Unit cast steel construction assures a strong, solid base, free from vibration, that keeps shafts and other operating parts in perfect alignment. All operating machinery is mounted on this deck to provide maximum accessibility.

Plan now to choose an OSGOOD...designed for greater operating efficiency. A complete line of Power Shovels, Cranes, Draglines, Backhoes, Clamshells and Pile Drivers.



POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE **OSGOOD** CO. **O-G** THE **GENERAL** CO.
EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • $\frac{1}{8}$ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES



Knock down and drag out

...powerful Le Roi-Cleveland Paving Breakers get jobs done in a hurry at low cost

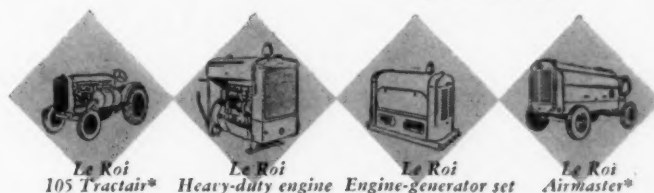
Wallop — that is the secret of Le Roi-Cleveland Paving Breaker success — that is why these machines save time regardless of the material being broken.

All this power stays on the job, too, giving dependable performance day in and day out. Front head parts are protected—they receive no shock from the piston blows so that up-keep costs are unusually low.

Equip your crews with Le Roi-Cleveland Paving Breakers. Knock out the work in a

hurry. Enjoy the benefits that result from substantial savings in time and money. Ask your Le Roi distributor to show you all the features that make these paving breakers easy to use and economical to own. Sizes range from 35 to 83 pounds. Write for latest literature.

*Reg. U.S. Pat. Off.



Le Roi
105 Tractair*

Le Roi
Heavy-duty engine

Le Roi
Engine-generator set

Le Roi
Airmaster*

LE ROI COMPANY



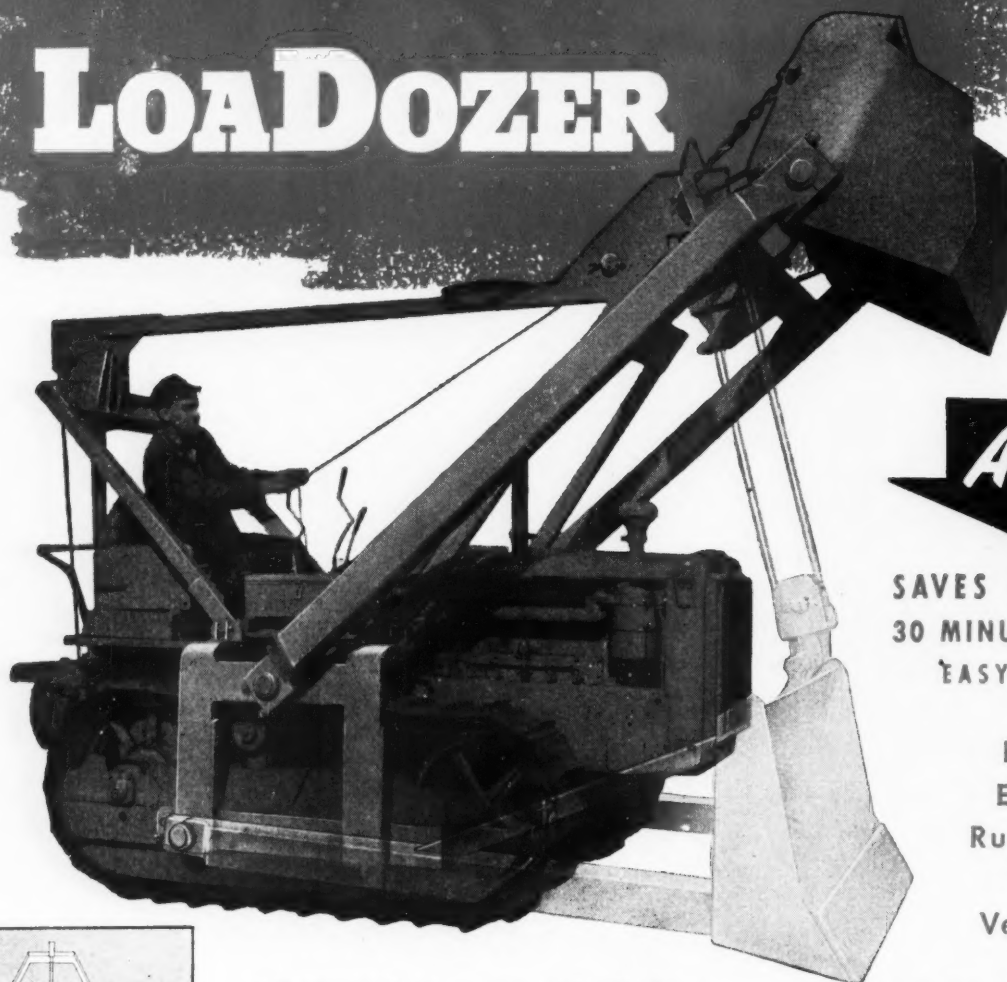
CLEVELAND DIVISION
Manufacturers of Cleveland Rock Drills
Cleveland 11, Ohio

LE ROI COMPANY, General Offices, Milwaukee 14, Wisconsin

NEW YORK • WASHINGTON • CLEVELAND • MILWAUKEE
BIRMINGHAM • TULSA • BUTTE • SAN FRANCISCO

RD-3

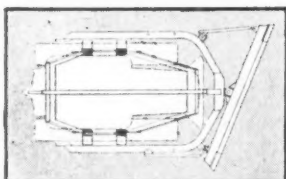
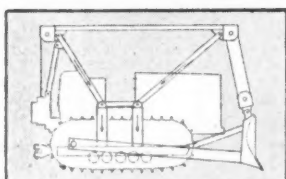
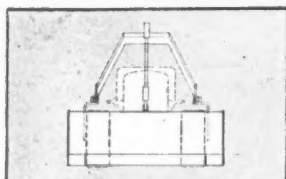
NOW-THE SOUTHWEST LOADOZER



All this

SAVES ONE TRACTOR
30 MINUTE CHANGE-OVER
EASY OPERATION

Balance
Economy
Ruggedness
Speed
Versatility



"Over Center Track Mounted"
design gives perfect balance

All these features are "built-in" qualities of the new SOUTHWEST "LOADOZER"—Extra values that mean greater efficiency and economy in Loader and Bulldozer operations. Remember—you SAVE ONE TRACTOR—it takes only 30 MINUTES TO CHANGE OVER this combination Loader-Bulldozer unit.

ANOTHER EXAMPLE
OF *Southwest's* LEADERSHIP

- Built for all four makes of track type tractors.
- See your equipment dealer about the complete line of SOUTHWEST CONSTRUCTION EQUIPMENT.
- For complete specifications on this Loader-Bulldozer combination unit—WRITE FOR BULLETIN CM-11.

CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA



Break Concrete the LOW COST way!

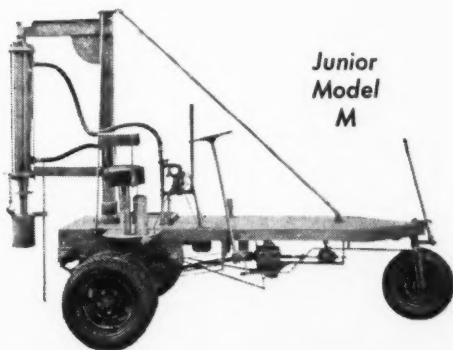


with

RAPID

PAVEMENT BREAKER MACHINES

- Model-H can be converted to vertical machine in 30 minutes.
- Junior Model T for mounting on truck with compressor also available.
- Write for details and prices.



- Unequaled performance in concrete breaking.
- Fastest pneumatic method.
- Not a drop weight, but a pneumatic controlled blow.
- Average working speed, 55 blows per minute.
- Saves labor-time-dollars.
- Built to have a low upkeep cost.
- Breaks to any size desired.
- Adapted to inside or outside work.

- Increases your compressor output.
- Ideal for cutting trench and tamping backfill.
- The profitable addition to your line of equipment.
- Heavy-duty machine equipped with air motor which pivots the unit on the truck bed.
- Junior Trailer Models are equipped with air motor that propels machine and swings the boom.

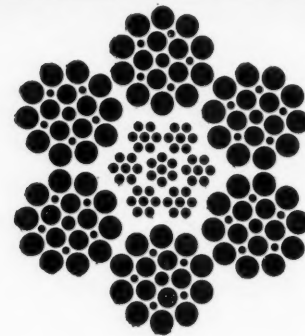
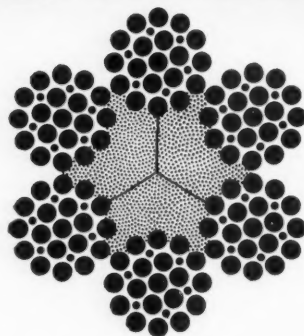
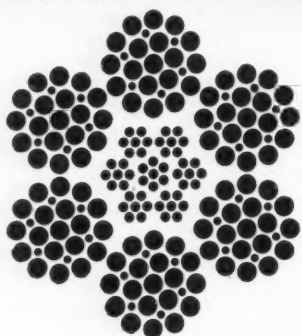
R. P. B. CORP.

1517 Santa Fe Ave.

Los Angeles 21, Calif.

WHICH ROPE IS BEST ?

It all depends on the job!



THREE OF THE MANY BETHLEHEM WIRE ROPE CONSTRUCTIONS

These are Bethlehem's Type W (IWRC), Type W (fiber core), and Type U (IWRC)—three commonly-used varieties. Each is

made for definite jobs, and one will not necessarily do the work of the others. Get specific details from Bethlehem representatives.

Too many people figure that rope is rope, and that what is good for one machine is just as good for another. That's like saying that the mainspring of a wrist watch would work in an alarm clock.

For example, a Bethlehem Type W rope is excellent as a hoist line in many applications. It's designed for this purpose. We seldom recommend it as a dragline. There is another Bethlehem construction (Type U) that is far more suitable for most dragline service.

Similarly, it pays to get the correct size, grade, lay, and core in every instance. Each of those factors is important; each has a bearing on the life of your rope.

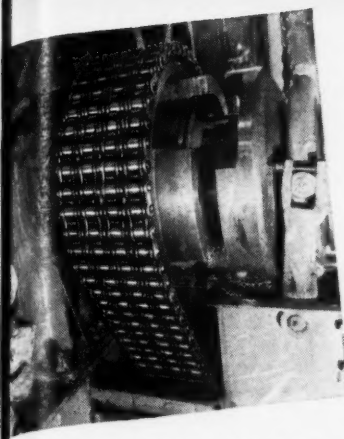
Our tip is this: if you aren't sure which is the right wire rope for your job, ask a Bethlehem engineer for his recommendations. This specialized service is yours for the asking, and it may save you a lot of grief—and money.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

When you think WIRE ROPE...think BETHLEHEM





Diamond Drives Deliver

The Power that Delivers the Dirt

■ There is little resemblance in the appearance of the typical high capacity machines shown below, exemplifying the finest of current engineering practise, and that of their earliest counterparts when engines first supplanted horses and mules in construction, earth-moving and road-building work, but they are alike in being equipped with Diamond Roller Chain Drives.

Leading manufacturers of machinery for these industries still demand high efficiency and enduring reliability, and still depend on Diamond Drives for the 100% performance that has characterized them under the extremely rugged conditions of service they must withstand.

Such advantages plus their wide adaptability make Diamond Roller Chains a means of improving the machinery you build or use also. Diamond engineers are ready to make practical recommendations whether power involved is a fraction of a horsepower or several thousand. DIAMOND CHAIN COMPANY, Inc., Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana. Offices and Distributors in All Principal Cities.



DIAMOND



ROLLER CHAINS

4 REASONS WHY

Wendling Bros. Co., General Contractors,
Dover, Ohio, are enthusiastic about
their MICHIGAN Mobile SHOVEL-CRANE



SPEED AND ECONOMY: "... average daily fuel consumption is 20 gallons of gasoline ... 600 yards of material loaded or unloaded per day and with clam we can excavate average of 400 yards per day. With trench hoe, 500 to 700 feet of trench can be opened, depending on depth of ditch."

OPERATING EASE: "... Air Controls make this machine one of the easiest to operate."

TRUCK MOBILITY: "... Because of the ease with which MICHIGAN can be moved, we have worked on 5 different jobs in one day due to the fact that it can travel 30 to 35 miles per hour over the highway."

VERSATILITY: "We have used this machine for pile driving, dredging creeks, bridge building, setting steel, loading strip steel in 5 to 10 ton bundles and in one instance lifting a piano and putting it into an upstairs window."

• • •

Wherever you go, you'll find long-time owners lavish in their praise of the ability of MICHIGAN Mobile SHOVELS-CRANES to do more work in less time, at less cost ... Complete details on these $\frac{3}{8}$ yd. and $\frac{1}{2}$ yd. fully convertible MICHIGAN Mobile SHOVELS-CRANES is yours on request. Ask for Bulletin CM-47.

MICHIGAN

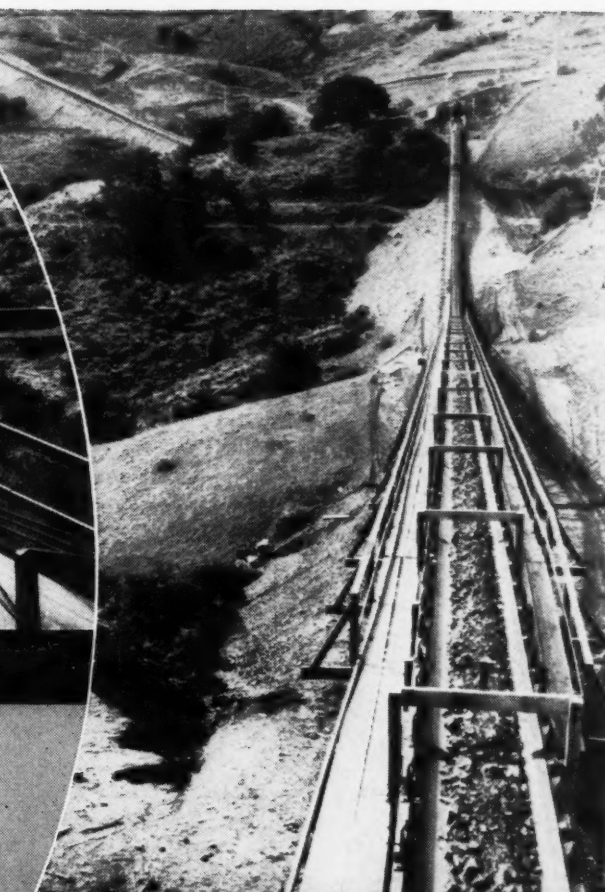
POWER SHOVEL COMPANY
BENTON HARBOR MICHIGAN



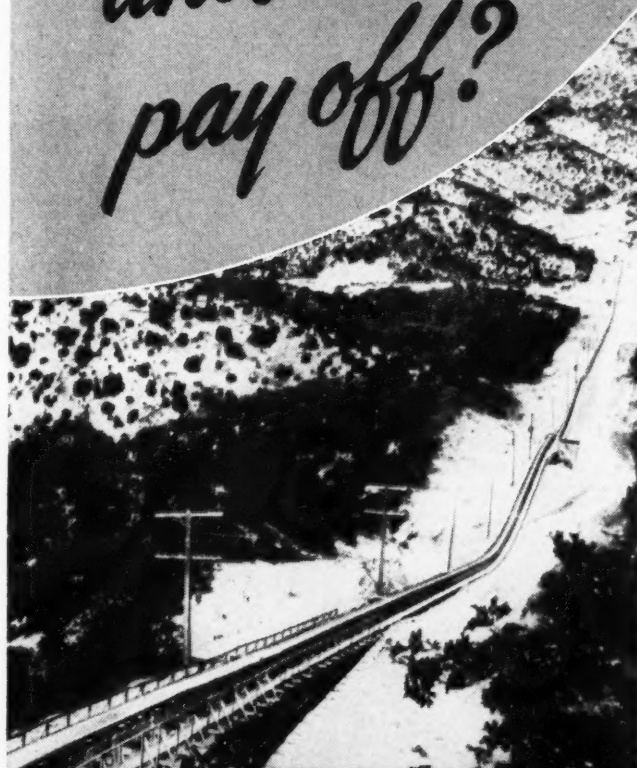
GRAND COULEE... 2 MILES

HOW LONG CAN A CONVEYOR BE . .

*and still
pay off?*



SAN JOSE... 4 MILES



SHASTA... 10 MILES

On large construction projects, conveyors have long been the accepted tool for moving bulk materials in a continuous flow over short and medium distances . . . but how about relatively long hauls? Based on present data, 30 to 50 miles is probably the economic limit—one conveyor now under consideration would be 38 miles long, and there is every reason to believe that conveyor lengths may reach 50 miles in the near future.

Regardless of the length to which conveyors may grow, their electrification will not be a limiting factor. One-point electric control for the entire conveyor system is now possible, as well as electrical interlocking to prevent piling-up of material at flight junctions. On downhill runs, conveyor drive motors can function as generators and pump power back into the line . . . one conveyor system actually generated more power than it consumed, once it was placed in motion.

Conveyors are just one of many electrified construction tools on which General Electric engineers are working in co-operation with equipment manufacturers and contractors to speed construction and keep initial, operating, and maintenance costs at a minimum. Ask your G-E representative how electrification of your construction equipment can help you make a better product at lower cost. *General Electric Company, Schenectady 5, N. Y.*

GENERAL  ELECTRIC

Split-Second Timing pays off . . .



ATLAS ROCKMASTER BLASTING gets results

In golf the right club plus know-how, plus split-second timing that applies power at just the right moment produces the shot that pays off. The precision timing of the new Atlas Rockmaster Blasting System is paying off. Never before has the blaster been able to achieve such amazing control of timing. And never before has he had such sensational results.

Atlas Rockmaster makes it possible for the blaster to time the delay elements of his shot in thousandths of a second. A split-second after the rock is knocked off balance by the first blast, it is hit again . . . with results you actually have to see to believe.

When Rockmaster is used dollars are saved. A tremendous increase in fragmentation is being reported by blasters

all over the country . . . in many instances the increase is as high as 30%. Secondary shooting has been cut down . . . shovel efficiency stepped-up. And trouble-making complaints due to noise and vibration have practically disappeared.

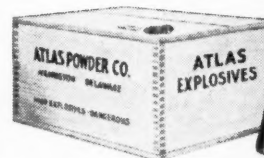
Rockmaster is not just a timing device. Rockmaster is a complete blasting system of which precision timing is only a part. All factors of the blasting problem—detonators, explosive and loading—are taken into account and combined with your know-how and ours to produce true Rockmaster effectiveness.

To get outstanding results yourself, call in the Atlas representative and ask him how Rockmaster can be adapted to your blasting problem.

ROCKMASTER GIVES
YOU THE GREATER
SAFETY OF MANASITE
DETONATORS



Less Bark . . .
More Bite

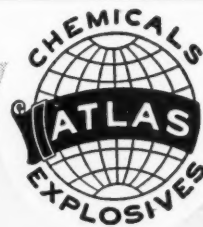


Manasite: Reg. U. S. Pat. Off. "ROCKMASTER"—Trade Mark

ATLAS

EXPLOSIVES

"Everything for Blasting"



ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco

Off went the Boiler— Down went the Costs

WHEN Valentine Clark changed its log handler from steam to Diesel power, a lot of things happened.

First, \$60 a week was saved on boiler tending. Maintenance nose-dived. The machine was always ready at the touch of a button. And, very important, a dangerous fire hazard was ended.

All this just emphasizes the money to be saved and the advantages to be gained by using General Motors Diesel power.

GM Diesels are 2-cycle engines with power on every downstroke of the pistons. They are therefore compact—can go to work in places where Diesels couldn't be used before. They're quick starting, pick up their load fast, and stick to the job day in and day out with little attention.

Contractors everywhere are astonished at the money GM Diesels save them. It's sure worth looking into. Let us see that you get the full details.

DETROIT DIESEL ENGINE DIVISION

DETROIT 23, MICH. • { SINGLE ENGINES . . . Up to 200 H.P.
MULTIPLE UNITS . . . Up to 800 H.P.

GENERAL MOTORS

*Diesel Brawn
without the Bulk*



Self-propelled Brown Hoisting Machine of the Valentine Clark Corporation of Minneapolis on the job at Newport, Wash. It is now powered with a GM 4-cylinder Series 71 engine.





*Was there much
INFILTRATION in
that new sewer line?*



*Never saw **SO LITTLE..**
those **TRANSITE** joints
are sure tight!*



Transite asbestos-cement sewer pipe cuts infiltration to a minimum...reduces sewage treatment costs. Here's how:

- (1) **Sleeve-type joints make up tight . . . stay tight in service.**
- (2) **Long 13-foot lengths result in fewer joints in the finished line.**

Thus, *tighter joints and fewer joints* provide a double safeguard against infiltration. In turn, the load on the treatment plant is reduced...treatment costs are kept low. And, equally important, plant capacity is conserved for tomorrow's needs.

Other money-saving Transite advantages:

More Economical Installation—because Transite's light weight and long lengths make it easier to lay this pipe to line and grade.

Flatter Grades—Transite's high flow capacity ($n=.010$) often permits shallower trenches and correspondingly lower excavation costs...especially important in the case of rock excavation or wet trenches.

Smaller Diameter Pipe—an alternate economy to flatter grades which the designer may take advantage of when deep trenches present no serious installation problems.

High Corrosion Resistance—because of Transite's non-metallic structure that combats corrosion inside, outside and all the way through.

For all the facts, write for the Transite Sewer Pipe brochure. Address Johns-Manville, Box 290, New York 16, New York.



Johns-Manville TRANSITE SEWER PIPE

"Buda Earth Drill

*whipped a most
difficult
foundation
job!"*

following are excerpts from a letter received from:

**FOUNDATION COMPANY
OF
MISSISSIPPI**
Jackson, Mississippi

The Buda Company
Harvey, Illinois
Gentlemen:

...enclosed are pictures made of one of our BUDA drills on a most difficult foundation job... We have a condition here that has been a problem for years and every method known had been tried without success. But... we have developed a method with BUDA Drills that has overcome all difficulties. We have convinced ourselves as well as engineers and architects, including the U. S. Engineers, that we have whipped this situation.

This job had 91—16" piles 31' long and 135—12" piles 31' long. The 16" piles were all for outside walls and had spirals with 5-3/4 round rods; the 12" piles had 4-3/4" rods. This job was completed in thirty days with one BUDA Drill.

Yours very truly,
FOUNDATION COMPANY OF MISSISSIPPI
(Signed) J. W. Spence

Illustrated are full and close-up views of the BUDA Model HBE Earth Drill which put down 226 holes for 31 ft. piles, in 30 days, as outlined in the letter, above... a typical example of BUDA Earth Drill efficiency.



Investigate the time and money-saving advantages of the full line of BUDA Earth Drill models.

See your nearest distributor

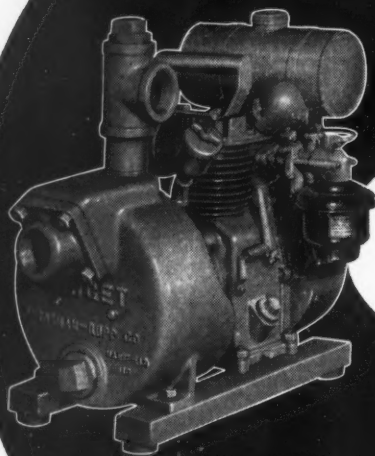
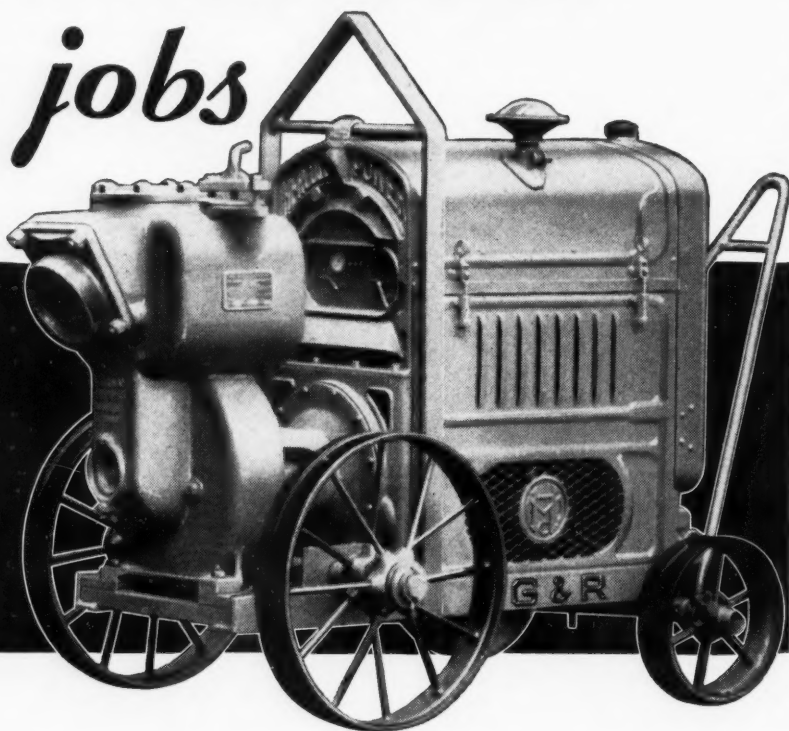
BUDA

15430 Commercial Avenue
HARVEY (Chicago Suburb) ILLINOIS



TOUGH pumps *that will handle the* **TOUGH** jobs

Gorman-Rupp Heavy Duty Pumps are big, tough and dependable. The Pump pictured here is the Model 1602 (90M), capacity 15,000 GPM at average total head.



The Midget — 3,000 Gallons per hour at 20 ft. total head. 5 ft. suction lift; length 18½ inches, width 9¼ inches, weight 60 pounds.

Pumps and other equipment used on construction work must take a lot of punishment. Gorman-Rupp centrifugal pumps can help you complete your contracts on time and at a greater profit. They will stay on the job day in and day out for months at a time if necessary with no costly loss of time for repairs.

Gorman-Rupp self-priming centrifugal pumps are by far the simplest pumps made and are streamlined inside where streamlining counts. They will handle any muck, weeds or gravel that will pass the intake strainer. Every part of a Gorman-Rupp pump has long wear built into it and every wearing part is easily and quickly replaced with common tools.

There is a Gorman-Rupp pump as small and handy as a bag of tools, capable of delivering 3000 G. P. H. and there are other pumps with capacities up to 125,000 G. P. H.

Gorman-Rupp pumps will out-live and out-perform any other comparable equipment.

Originators in 1936 of the Famous Blue Pump that others now imitate.

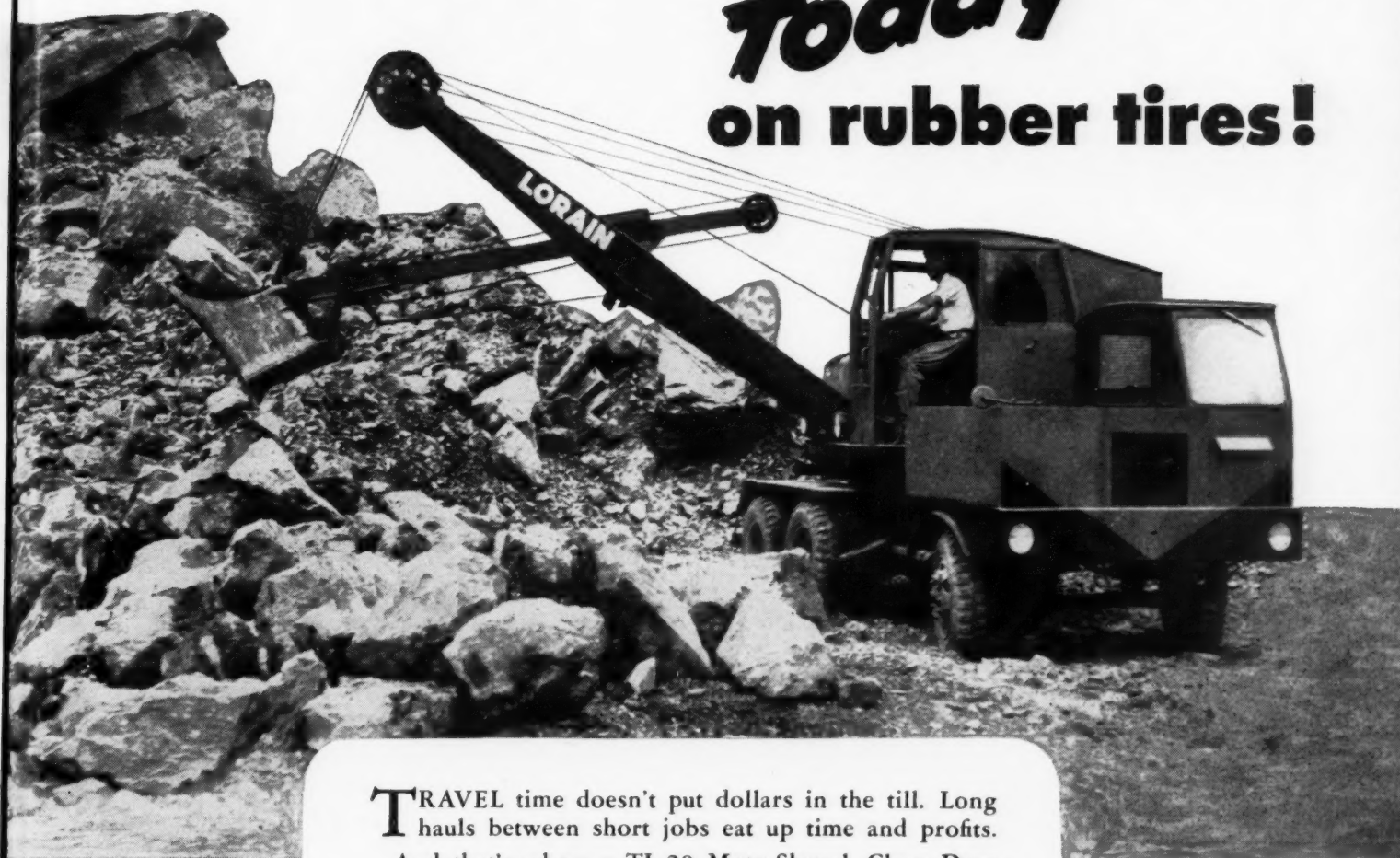


GORMAN-RUPP COMPANY

308 BOWMAN STREET • MANSFIELD, OHIO

Get tomorrow's jobs done

today on rubber tires!



TRAVEL time doesn't put dollars in the till. Long hauls between short jobs eat up time and profits.

And that's where a TL-20 Moto-Shovel, Clam, Drag or Hoe saves you money. Its rubber-tire mounting cuts travel time whether you move a 100 feet, yards or miles. On the job, the TL-20, incorporating the features listed, is the newest, smoothest unit in the ½ yd. class. Between jobs, it's the fastest stepping unit in any class.

Want the facts? Your local Thew-Lorain distributor has them. And remember—the contractor who digs and travels on rubber tires, today, will have the lowest costs and longest profits tomorrow.

THE THEW SHOVEL COMPANY, Lorain, Ohio

**5 IDENTICAL
CLUTCHES**

**ANTI-FRICTION
BEARINGS**

UNIT ASSEMBLY

INDEPENDENT ROPE SHOVEL CROWD

**9 RUBBER-TIRE
MOUNTINGS AVAILABLE**

2 SPEED CRAWLER

LIGHTS, STARTER, GENERATOR STANDARD EQUIPMENT

5 INTERCHANGEABLE BOOMS

**INTERCHANGEABLE
PARTS**

**OIL-ENCLOSED
CUT GEARS**

Reg. Trade Mark
Lorain

**Thew
TL-20
Lorain**



SURE-GRIP for
maximum traction
on drive wheels

BUY and SPECIFY
GOODYEAR
— it pays!

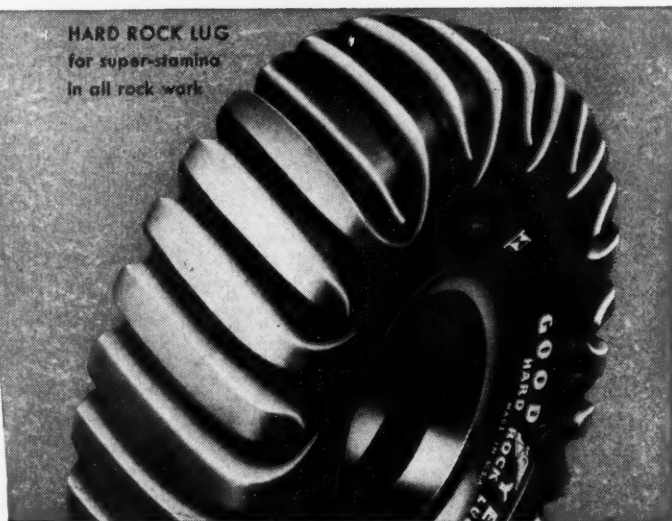
When the going is really rough, call on job-proved Goodyears. In body and tread they're built to do more work—take more punishment—than any other off-the-road tires made today. Pick one of these giants for your particular job—move more dirt, faster, at lower cost.

**More yards
are moved on**

ALL-WEATHER for
drawn vehicles and
general traction



HARD ROCK LUG
for super-stamina
in all rock work



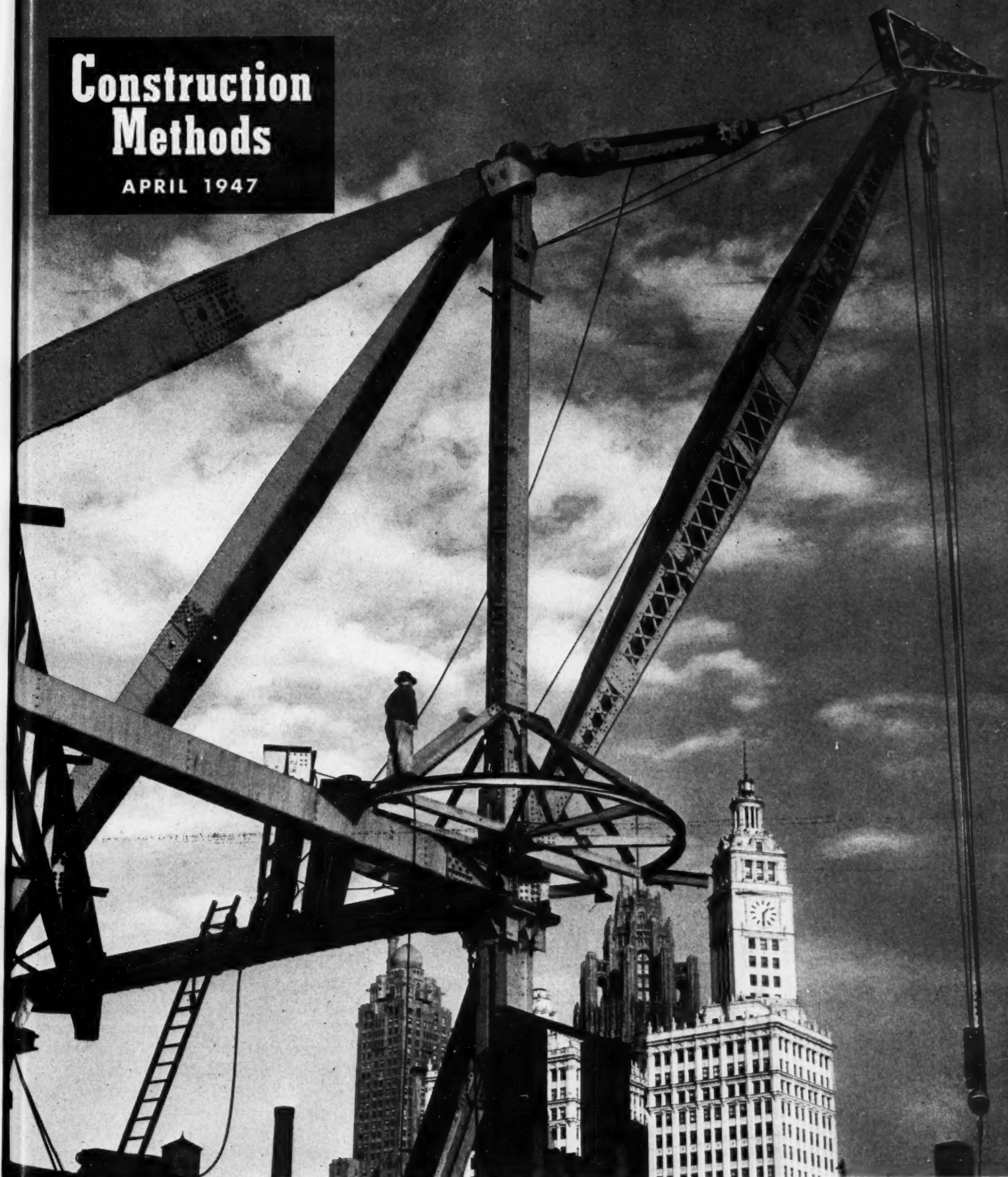
Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company

GOODYEAR

**off-the-road tires
than on any other kind!**

Construction Methods

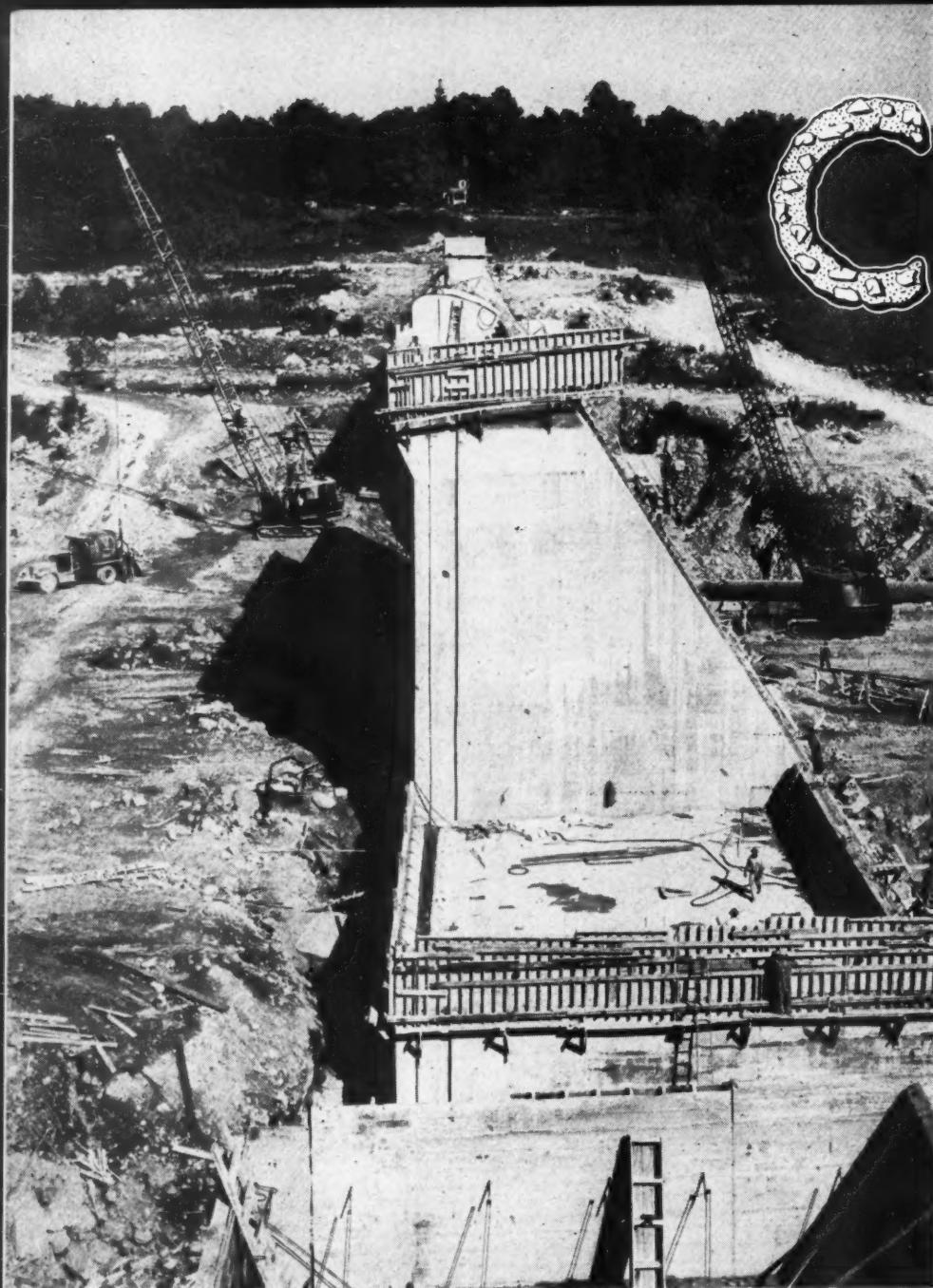
APRIL 1947



CHICAGO RESUMES BRIDGE BUILDING

BIG STEEL STIFFLEG, mounted on steel towers, starts steel erection at north abutment of long-delayed State St. Bridge in Chicago. Overland Construction Co., contractor, is resuming work on \$1,276,348 superstructure contract let in 1941, interrupted by the war before

a pound of steel was delivered. American Bridge Co. is delivering eight 75-ton girders by barge from Gary plant to start the job. Steve Michuda, engineer of bridges for city, hopes to have the 108x210-ft. double bascule span open to traffic next spring.



NORWALK LAKE DAM rises in shallow valley of Silvermine River near New Canaan, Conn. Transit-mix concrete, simple forms, and special concrete buckets highlight its construction. Gravity structure will dam 550 million gal. for water supply.

AT PIT, upstream from dam, Bucyrus-Erie $\frac{7}{8}$ -yd. shovel (below) loads gravel for truck delivery to crushing plant. Average haul is only 1,500 ft.



C Concrete F

TO SIMPLIFY CONSTRUCTION OPERATIONS at Norwalk Lake Dam on the Silvermine River near New Canaan, Conn., E. W. Foley Associates Co., Inc., general contractor for the project, mixed concrete in transit between local batch plant and damsite and placed the mix with specially designed concrete buckets hoisted by crawler cranes. A fleet of nine 5-yd. transit-mix trucks successfully handled 73,500 cu. yd. of concrete for the dam, despite a stiff mix and aggregate ranging in size up to 6-in. cobble.

Built for the First Taxing District of Norwalk, Conn., the dam is a mass concrete structure 1,012 ft. long, including end cutoff walls, with a 200-ft. overflow section near the center. Maximum height is 109 ft., and base and top widths are 74 and 9 ft. respectively. The reservoir will store 550 million gal. of water to augment the existing supply of the city of Norwalk.

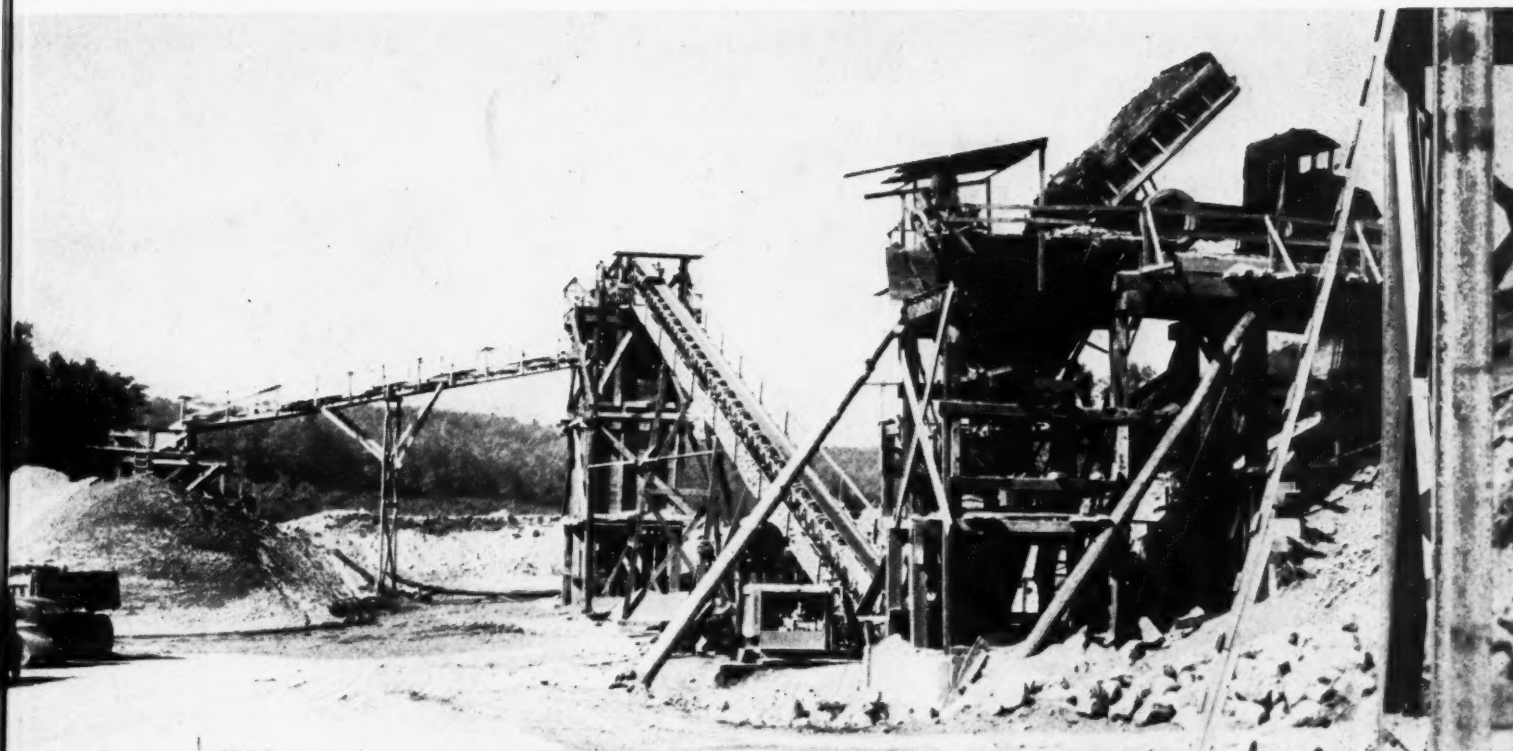
Plants Near Damsite

During excavation of 32,000 cu. yd. of earth and 14,000 yd. of rock from the site, gravel and batch plants were erected midway between the dam and an excellent gravel deposit 3,000 ft. upstream. The batch plant was so located that the transit-mix truck travel time between plant and dam was 3 min., the same as the specified concrete mixing time. This advantageous positioning of the plant kept mixer-truck waiting time to a minimum, yet assured a steady delivery of concrete to the dam.

At the pit a Bucyrus-Erie 33B shovel with $\frac{7}{8}$ -yd. dipper loaded gravel into dump trucks for delivery to a Tel-smith grizzly and jaw crusher. An inclined belt conveyor passed material from the crusher to screens and a washer mounted on top of a 3-bin aggregate silo into which screened gravel fell. Wash water sluiced sand to a stockpile. Aggregate in excess of bin capacity was trucked to stockpiles for later reclaiming.



FOR DAM MIXED IN TRANSIT

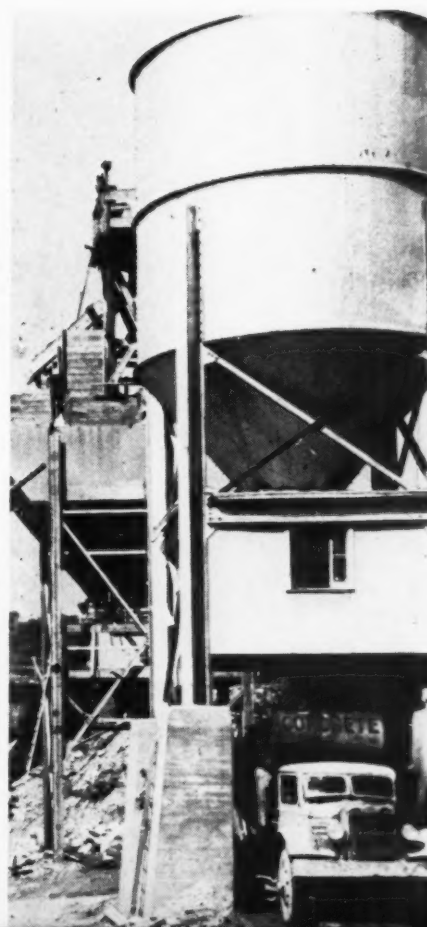


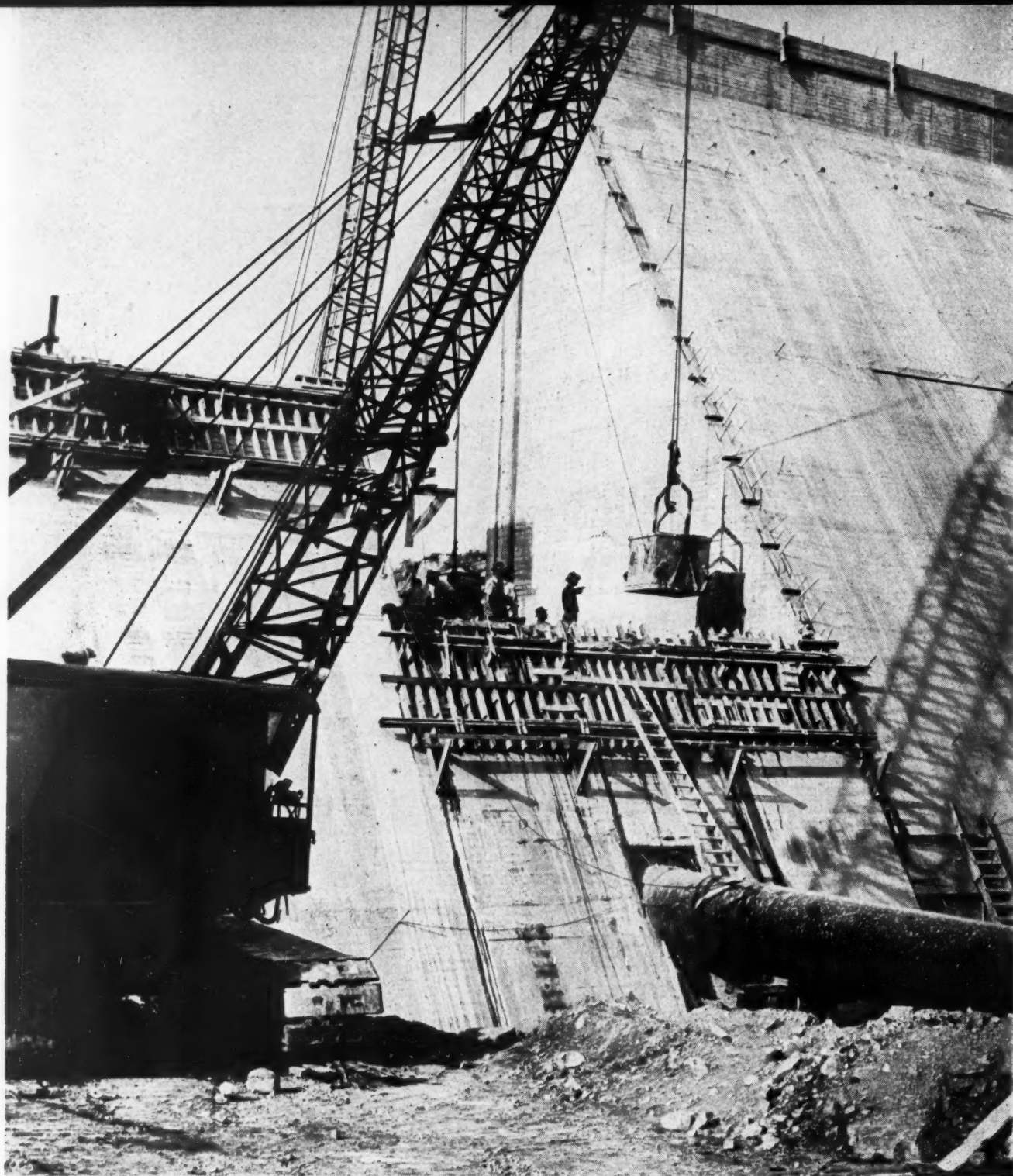
PROCESSING PLANT, between pit and dam, crushes, screens and washes all aggregate for 73,500 cu. yd. of concrete in gravity structure 1,012 ft. long. Location along hillside permits direct dumping to grizzly and crusher.



← **AGGREGATE PLANT** loads 5-yd. transit-mix truck with 4-yd. batch ranging from sand to 6-in. cobbles. Tank in background holds mixing water.

→ **MIXER TRUCK** gets cement batch before making 1,500-ft. haul to damsite. Trip takes 3 min., same as specified mixing time. Integrated plant capacity is 125 cu. yd. per hr.





CRAWLER CRANES with 80-ft. booms swing concrete buckets to forms to pour 5x50-ft. blocks of dam. River is diverted through 60-in. pipe at right during dam construction.

by a portable bucket loader or crawler clamshell.

From bins or stockpiles, aggregate was trucked to a belt conveyor feeding a 4-compartment Blaw-Knox batching plant adjacent to the crushing, screening and washing setup. Bulk cement was delivered by rail to New Canaan, 4 mi. away, and was trucked in 50-bbl. loads to a 1,000-bbl. bin and weigh hopper alongside the batch plant. Aggregate was weighed on beam scales and

dumped into mixer trucks that then pulled ahead 100 ft. to receive cement before continuing to the damsite. Integrated plant capacity was 1,000 cu. yd. of concrete per 8-hr. day.

Nine 5-yd. truck-mixers, mixing 4-yd. batches, handled all the concrete for the dam—73,500 cu. yd. The mix was roughly 1:2.4:6.1, with a water-cement ratio of 0.58 by weight, a slump of 1 to 2½ in., and a 3-min. mixing time. Each 4-yd. batch contained 2,918 lb. of 3-

to 6-in. cobble, 4,023 lb. of 1¼- to 3-in. medium aggregate, 3,064 lb. of ¼- to 1¼-in. fine aggregate, 3,891 lb. of sand, 1,640 lb. of cement and 935 lb. of water.

At the dam, trucks discharged concrete into special 2-yd. buckets handled by Marion and Manitowoc cranes with 80-ft. booms. The buckets could be dumped, much like clamshells, by the crane operators and were designed by Foley to eliminate the dangerous hand unlatching of a heavy, filled



← **SPECIAL BUCKET** operates like clam-shell, dumping under control of crane operator. Designed by contractor, 2-yd. bucket is cubical in shape to permit easy filling from transit-mix truck discharge chute.



→ **STRAIGHT SIDES** and full-opening bottom doors on bucket give quick discharge of concrete with little segregation. Concrete is poured at rate of 850 cu. yd. per day.

unit. Two bails—one connected to the cubical bucket itself, the other linked to double-leaf bottom doors—were hooked through a double sliding gooseneck to the crane's normal clamshell holding and closing lines. Vertical bucket sides and link-hinged discharge doors that opened over the entire area of the bucket bottom reduced segregation of the mix to a minimum since discharge was almost instantaneous.

The dam was constructed in blocks 5 ft. high and 50 ft. long, and two cranes operating on either

side of the structure dumped concrete in 18-in. layers into simple wood forms for the 5-ft. lifts. Front and rear forms were single panels 50 ft. long and 7½ ft. high of 1-in. lagging on 2x6 studs braced by two doubled 2x6-in. walers. Forms extended 2 ft. below and 6 in. above the pour. On the downstream face, sloped 7 on 10, a 3x4x¾-in. angle iron was bolted to the form panel 5½ ft. from the bottom and hooked with Tyscrus to 27x¾-in. rods on 4-ft. centers in the previous pour. The lower timber wale was bolted

to inserts cast in the dam face, and the upper one held Tyloops for the next lift. Form work was so simple that only 48 manhours were expended on each setup.

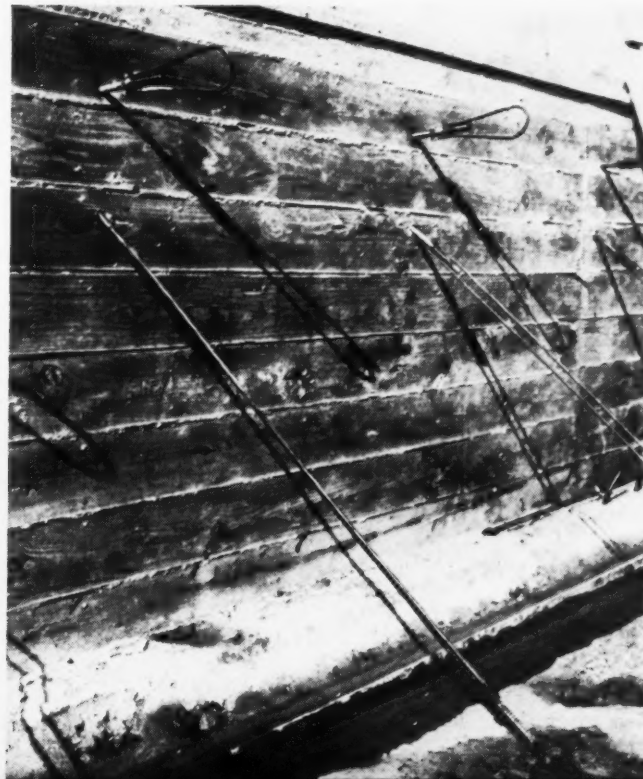
General contractor for the dam construction was E. W. Foley Associates Co., Inc., of Brooklyn, N. Y., for whom Mike Dorcic was superintendent and V. A. Clare, job engineer. E. H. Hartman was resident for the consultants, Buck, Seifert & Jost, of New York, and John E. Riordan was engineer for the Norwalk Water Department.

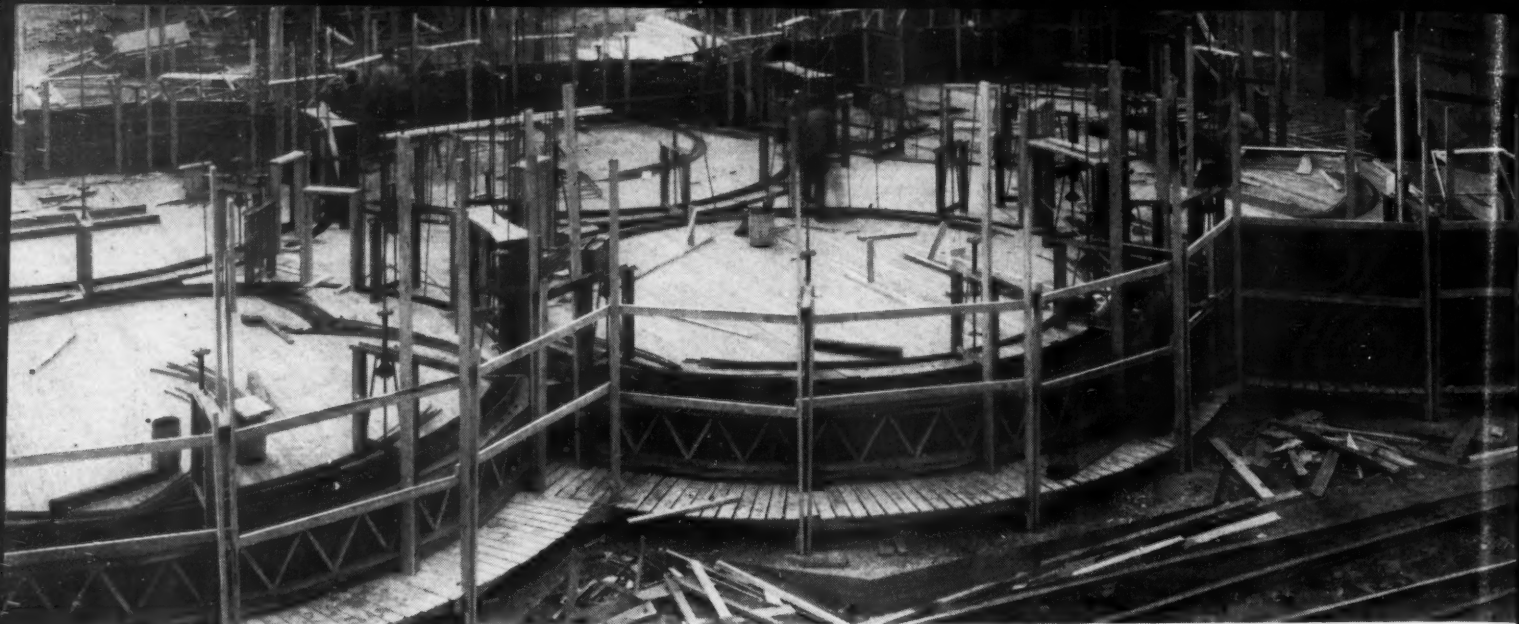
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VIBRATOR (below) works transit-mix concrete into 18-in. layers in pouring 5-ft. lifts. Note stiffness of mix and large aggregate.



SIMPLE FORM (below) is held by Tyloops and Tyscrus. Water stop of 8x¾-in. welded ingot iron strips is embedded in horizontal and vertical construction joints. Horizontal joint is keyed and has slope of 1 in 20; vertical joint is plain.





SLIDING FORMS and working platforms for 10-cell unit of cement storage silos. Scaffold hangers are in place, ready to pick up scaffolds when forms get to 16-ft. level. Jacks and jacking yokes are set, and start has been made in placing canvas enclosure around scaffolding and forms. Fan heaters will be placed on working platforms, to be connected to hot-air distributing ducts on scaffold.

HEATERS RIDE SLIP FORMS

On Cement Silo

WINTER JOB



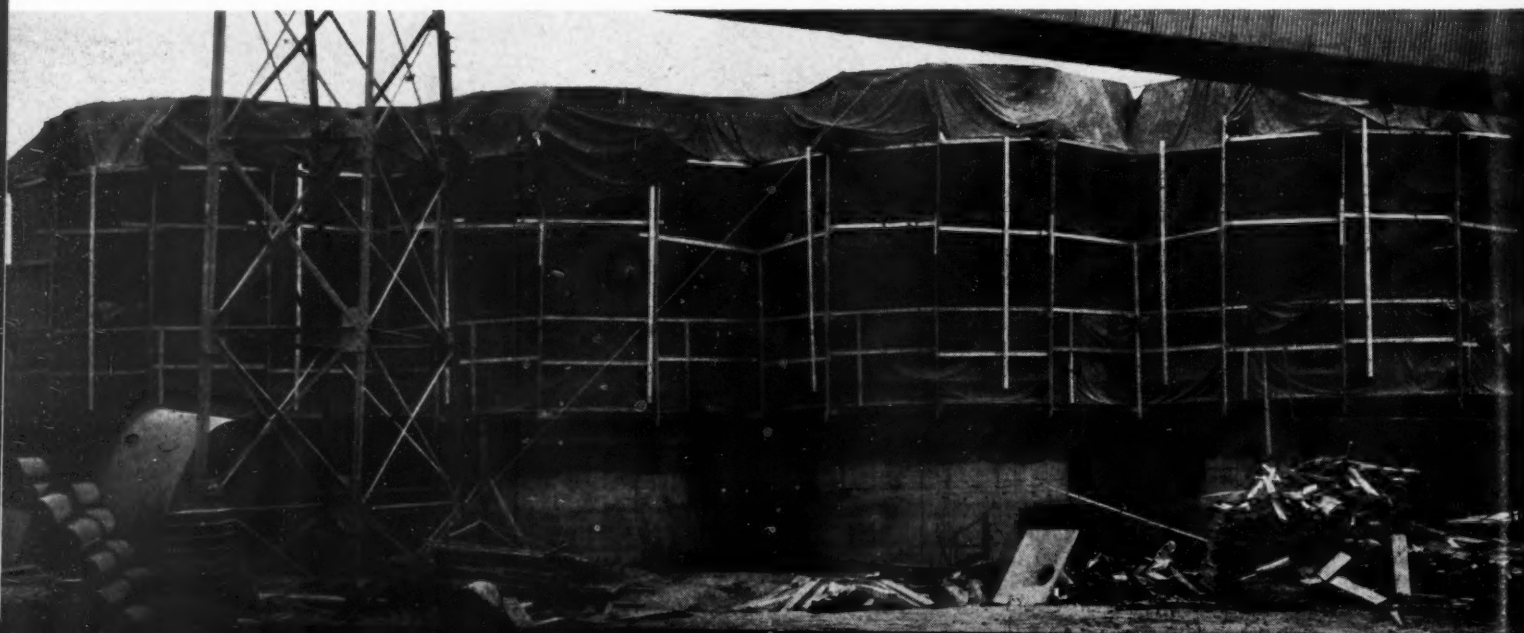
VETERAN SUPERINTENDENT W. H. Miller (left) poses with his boss, ARTHUR H. NEUMANN, head of Arthur H. Neumann & Bros., Inc., on top of the first unit of silos.

Page 82 — CONSTRUCTION METHODS — April 1947

CANVAS PROTECTION completely incloses forms and scaffold working area (below) as concrete silos rise on winter concreting job. Top of canvas is loose to permit draping over top of freshly-poured cell walls.

POURING THIN-WALL CONCRETE SILOS with slip forms in Iowa winter weather has all the makings of a tough job. However, Arthur H. Neumann & Bros., Inc., contractor for two sets of cement storage bins at the Des Moines plant of the Marquette Cement Mfg. Co. made it an easy job by placing fan heaters on the sliding forms, with their hot air directed inside a canvas enclosure by Masonite ducts. With outside temperatures hitting zero, it was never below 45 deg. F. under the canvas protection.

Marquette is building 20 new cement storage silos,



with a total capacity of 216,000 bbl., consisting of two groups of ten 26-ft. dia. silos 100 ft. high, each group arranged in two rows of five each. Wall thickness is 9 in. Each of the two groups of cells is on a common foundation slab. The job is ideal for sliding forms.

The job was built in two units, 10 cells to a unit. A 4-ft. high form was set up on the foundation slab to start a unit, jack yokes and screw jacks were installed, and a working platform covering the interior of the cells and interstices between them was attached to top of forms to ride up with them. Cantilevers from the jack yokes carried an outside scaffold 16 ft. below top of form for use by the concrete finishers.

Wood-battened canvas inclosed the outside form and scaffold area, keeping the fresh concrete and the finishers under cover. The canvas extended above the forms and

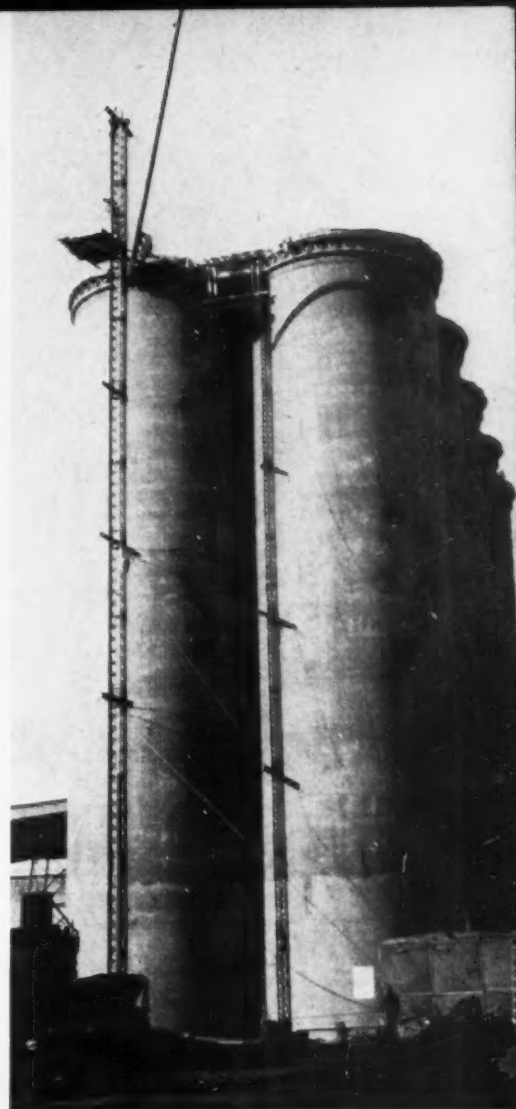
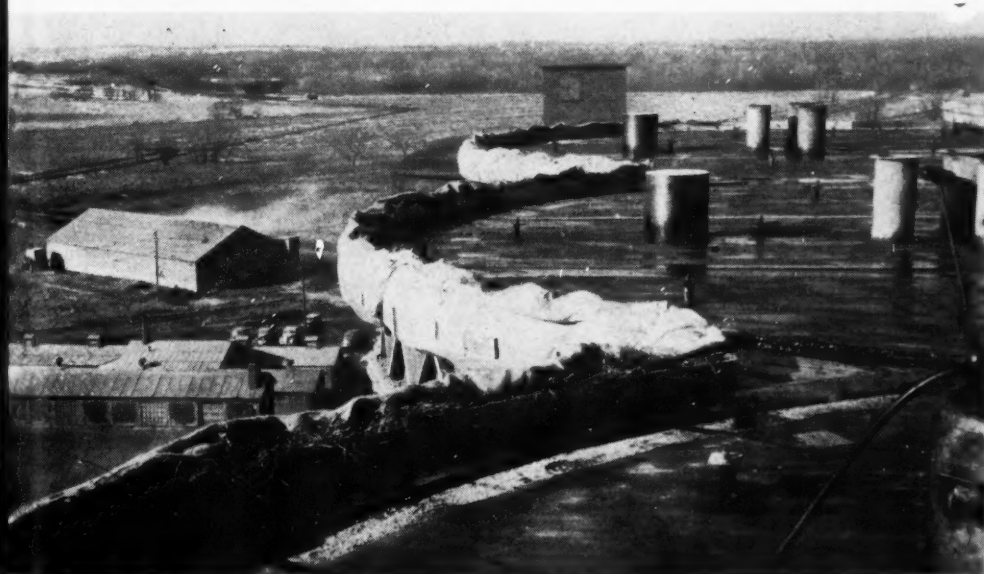
could be draped over top of cell walls for further protection to the concrete.

Six fan-type gasoline engine-driven and gasoline-fired heaters, developed by the Herman Nelson Corp. of Moline, Ill., for warming up airplane motors, were set on the working platform to ride up with the forms. These heaters are equipped with canvas ducts through which hot air is blown. Around the outside of the scaffold was built a Masonite duct, slotted on the side toward the cells. The canvas ducts from the heaters were connected with these fiber ducts, and hot air was thus directed against the outside of the cells and the forms. This system assured an even flow of hot air around all cells.

A 120-ft. guyed single-mast Insley tower equipped with a platform skip hoist was set up at the end of each unit. Men and con-

April 1947 — CONSTRUCTION METHODS — Page 83

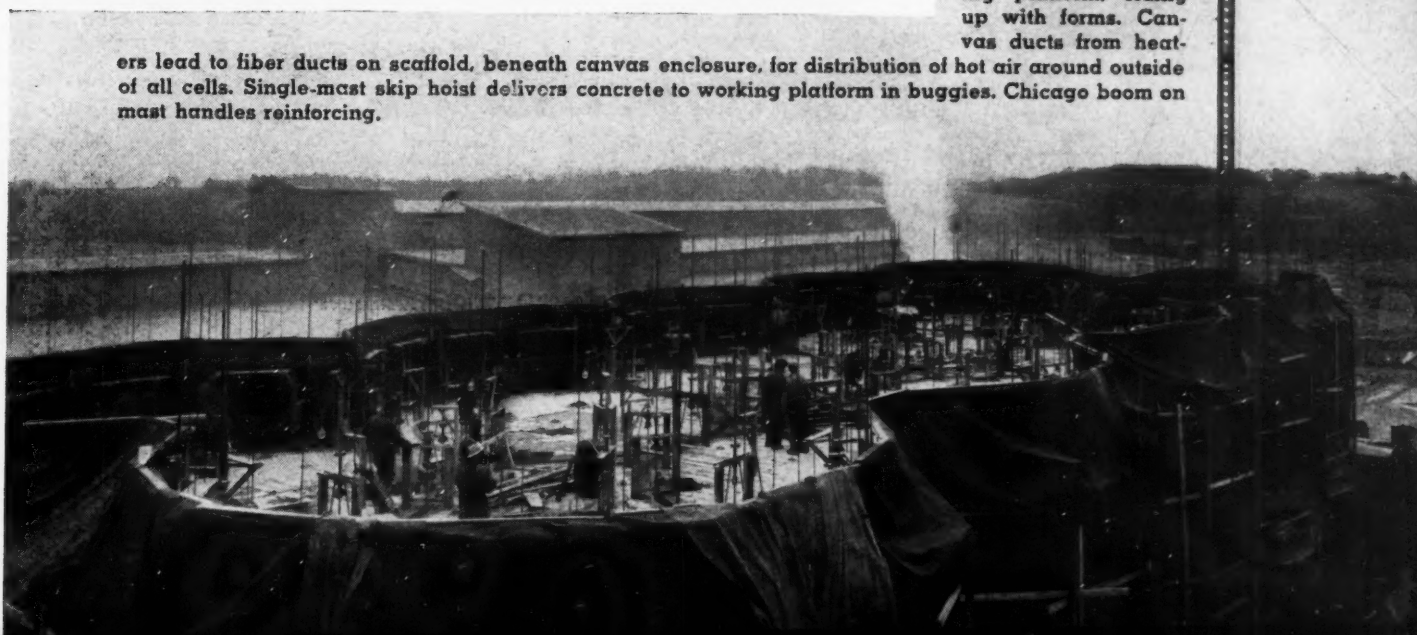
WORKING PLATFORM (below) becomes form for roof slab when walls are topped out. Canvas protection has been removed and straw now protects top of concrete walls in final stages of curing.



SILo WALLS are complete on first unit of 10 cells, ready for pouring the roof slab. Note single-mast skip hoist, with Chicago boom for handling concrete and steel.

WINTER CONCRETE operations in full swing on Marquette Cement Mfg. Company's silo storage project. Six fan-type heaters are on working platform, riding up with forms. Canvas ducts from heat-

ers lead to fiber ducts on scaffold, beneath canvas enclosure, for distribution of hot air around outside of all cells. Single-mast skip hoist delivers concrete to working platform in buggies. Chicago boom on mast handles reinforcing.



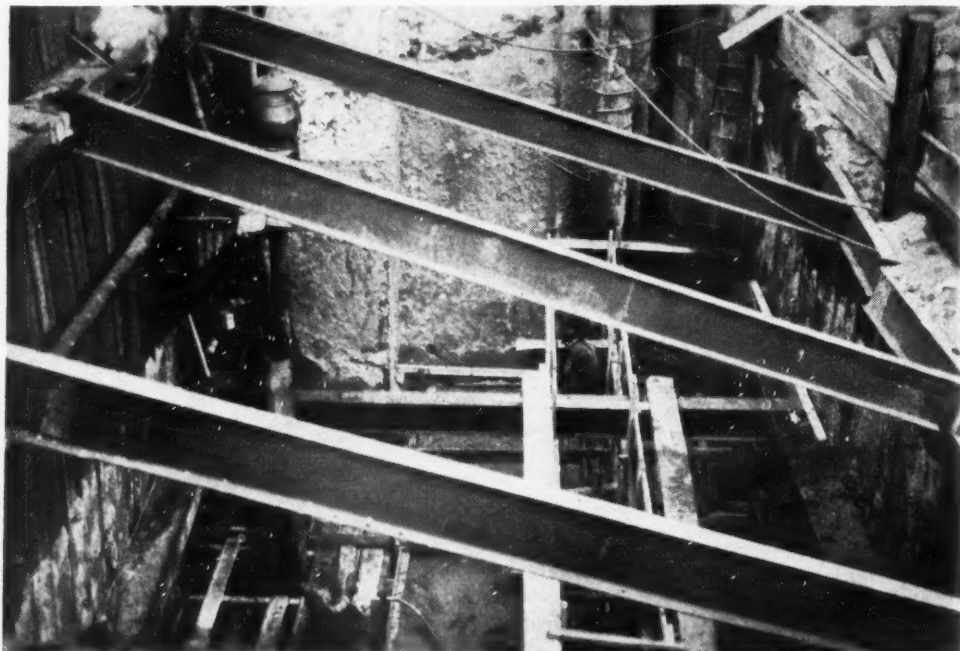
crete in buggies were hoisted to platform level by this rig. A Chicago boom at top of mast, operated by a separate hoist line, raised reinforcing steel to working level.

Concrete was mixed in a paver at ground level. The mix included 5 percent windblown sand, 76½ percent of which passes a 50-mesh screen, to make up for the harshness of local river sand.

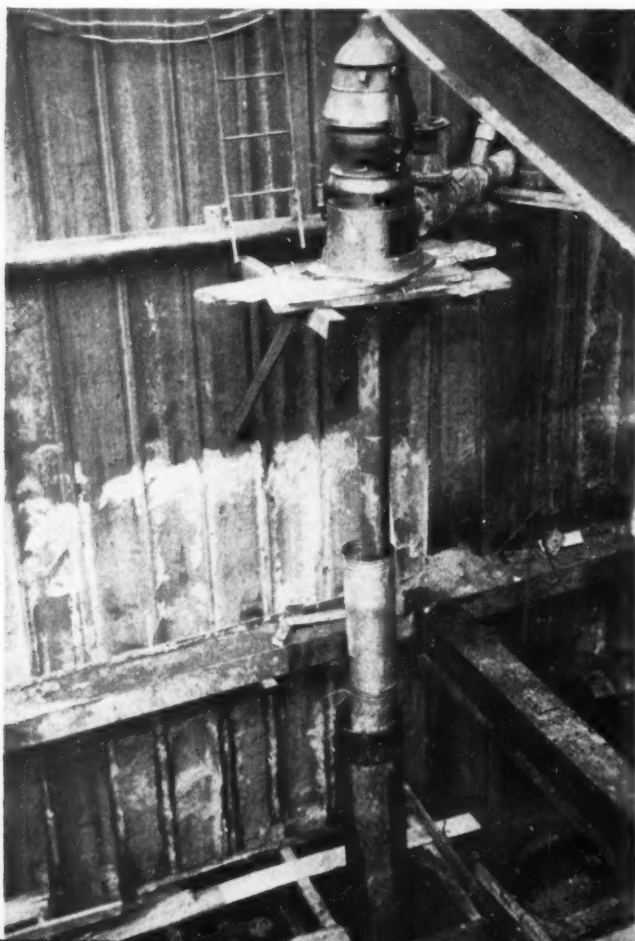
A. J. Boynton & Co., Chicago, are consulting engineers on the project, for whom C. S. Harmon is resident engineer. W. H. Miller is superintendent for Arthur H. Neumann & Bros. Inc.

Wells Keep Riverside Cofferdam Dry

→
TWO PUMPS, one shown here and one in opposite corner behind camera, keep steel-braced cofferdam dry in wet sand.



DEEP WELL PUMP (below) set in perforated casing, one of two similar installations, keeps cofferdam for powerhouse addition dry despite sandy soil and nearby river whose water level is 17 ft. above cofferdam bottom. Exterior casing shown here is merely protection for perforated screen at cofferdam level. Casing below was pulled after space surrounding screen was packed with gravel.



TWO DEEP WELL PUMPS in wells sunk at opposite corners of a 24x58-ft. cofferdam have kept the cofferdam dry during excavation and concrete placing for a boiler house addition to the Iowa Power & Light Co. plant on the Des Moines River below Des Moines, Ia. The cofferdam is 30 ft. deep from ground level to bottom of foundation slab, and 17 ft. of the depth is below the nearby river level.

The contractor, Arthur H. Neumann & Bros., Inc., Des Moines, who built the original plant years ago and knows the character of the sandy soil at the site, decided to try wells for dewatering the job. The scheme worked perfectly, largely because of careful installation of the pumping equipment.

Steel sheetpiling was driven around the area to below proposed foundation level, and the cofferdam was excavated to groundwater. Then two 24-in. casings were driven at opposite corners to 23 ft. below bottom slab level. The casings were fitted with loose points that kept out the sand but remained in place when the casings were later pulled.

When the casings were down to grade, a 12-in. perforated screen was placed full length in each, and the space between casing and screen filled with pea gravel. Then the casings were pulled, leaving the gravel as a French drain around the well. A 6-in. Sterling deep well pump, powered by a Fairbanks-Morse 15-hp. electric motor, was set in each well.

Excavation proceeded by clamshell as the water was pumped down, and steel wales and rakers were set to brace the sheeting. The pumps successfully dried up the excavation, and kept the cofferdam dry.

Joe Kapfer was job superintendent for Neumann.

*Cited
for
Service*

BRIGHT SUNSHINE makes him squint, for Jack Macdonald, one of the nation's top tunnel men, has spent too many hours underground ever to get used to full daylight. As vice-president of Walsh Construction Co., he now occupies an office high above Manhattan's Fifth Ave., but he is much more at home in a murky heading where chattering drifter drills make music, where slogging pumps sing lullabies, where pungent powder smoke is a bracing tonic. Wherever the heading may be, in hard rock or soft ground, in free air or high air, under the city or under the river, Jack is at home, for he has spent so much time there. He has handled some of the toughest tunnels in the country, and wherever tunnel men gather, his name is respected. His associates in The Moles gave him the society's award in 1941 for outstanding achievement.

John S. Macdonald, as he was christened, was born in Somerville, Mass., in 1893 and grew up in suburban Boston. Long before he graduated from Dartmouth in 1913 and from Thayer School of Civil Engineering a year later, Jack was a seasoned tunnel man, for he had spent his college summers working for the late Pat McGovern on the old Beacon Hill subway tunnel in Boston.

Getting his degree merely meant he could work for McGovern full time, and eventually he rose to vice-president of the firm. After a year on the New York State Barge Canal he was back underground on the Fort Point twin subway tunnel in Boston, a shield



JACK MACDONALD

job under air using wood cants for primary lining. Next were the 60th St. BMT tunnels under the East River in New York, a stretch in the open on Jersey City's water line, bridges in Brooklyn and caissons for the Brooklyn-Staten Island tunnel that never got beyond the shaft stage. Sewer tunnels in New York rounded out the first decade of his career, and he then went to Philadelphia to build 4 mi. of the North Broad St. subway.

In 1927 he was back in New York to drive the 53rd St. cross-town and East River tunnels on the new 8th Ave. subway system.

Next came the 21-mi. City Water Tunnel No. 2 through the Bronx and Brooklyn, mighty tough going in spots under East and Bronx Rivers. McGovern died in 1933, and under terms of the will, Jack liquidated the business, and after a brief joint venture with Pete Connolly on the River Rouge tunnel in Detroit, he joined Walsh as chief engineer.

Walsh soon tackled three big tunnel jobs, two sections of the Delaware Aqueduct and the Queens Midtown vehicular tunnel under East River. This last project is regarded as the most difficult shield tunnel ever driven. When the country was preparing for war, Jack built the 28,000-man Camp Edwards in Massachusetts, and then turned out two drydocks at Brooklyn Navy Yard. In early '43, as Jack expresses it, "I became a x?!xx shipbuilder" as general manager for Walsh-Kaiser Co. At the Providence, R. I., shipyards, he saw 65 cargo and escort vessels slide down the ways before the Japs gave up.

His Scotch blue eyes twinkle when he talks tunneling, and he'll talk tunnels at the drop of a hat or even if the hat doesn't drop. He has played an important part in tunneling advancement.

Give a man a tunnel he can drive, and Jack Macdonald will drive it.

LARGE CONCRETE PIPE

Placed on

San Diego Aqueduct

THE SAN DIEGO AQUEDUCT, the West's largest post-war water supply project, is a 71-mi. conduit of which 64 mi. consists of large-diameter reinforced concrete pipe. Although pipe sizes varied (96, 72, 54 and 48 in.) and terrain included both flat farmland and rugged hillsides, the problems were basically the same in each of four contracts for pipe laying. Each contractor had to get the pipe in the ground at the proper grade, seal the joints and place backfill to the required density. The contractors were Guy F. Atkinson Co., Concrete Pipe Constructors (a joint venture of Grafe-Callahan Construction Co., Gunther & Shirley Co., Condon-Cunningham Co., and Gibbons & Reed Co.), United Concrete Pipe Corp., and J. S. Barrett.

The pipe trenches were easily excavated with drag-lines. Some sections required blasting but no unusual methods were used. The contractors were required

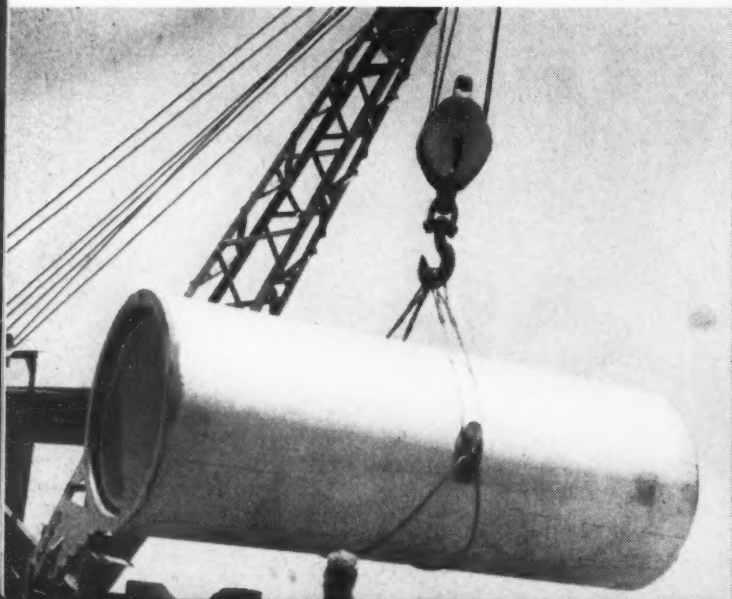
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INDIVIDUAL LENGTHS of pipe (below) are guided to position by expert use of cranes and by men both inside and outside pipe.



BOTTOM OF TRENCH for large-diameter reinforced-concrete pipe on San Diego Aqueduct was shaped to fit pipe.

EASILY DETACHABLE WIRE ROPE SLING (below) is used on some of the contracts on San Diego Aqueduct pipe-laying work.





IMMEDIATELY AFTER POSITIONING pipe length, strip of roofing paper is placed to form band around joint and keep joint clean until it is ready to be poured.



WEIGHT of 12-FT. LENGTH of 96-in. pipe, 18 tons, was greater than rated capacity of crane, so sand bags were piled on rear of cab as counterweights.

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AFTER BACKFILLING to just below top of pipe, joints are sealed (below) with cement mortar worked into place by flexible wire.

REQUIRED DENSITY of backfill is attained in most cases by use of pneumatic hand tampers served by portable compressor on bank.



to shape the bottom of the trench to fit the pipe. In cases where blasting was necessary the trench had to be overshot 12 in. and backfilled to the shape of the pipe with earth compacted to 98 percent of standard laboratory density.

After being trucked to the site, the pipe was lowered into the trench by cranes. Each pipe length was fitted with steel bell-and-spigot joint ring assemblies, using a synthetic rubber ring to seal the joints. Care had to be taken in making the joint to see that the rubber ring was not displaced.

After the pipe was in the trench select backfill was placed around it up to a line just below the spring line of the pipe and compacted to 98 percent density. In some locations through valuable farmland the trench width was restricted and backfill compaction was very difficult in the narrow space available. On level stretches, the soil was moistened and pneumatic hand tampers were used for compaction. Steeper slopes, which varied up to 65 percent, required various combinations of puddling,

flooding and jetting and poling for compaction. The trench was then backfilled just up to the top of the pipe and the joints were sealed with grout. When the pipe was laid, a roofing paper strip was placed around each joint to keep earth out of it. Grout was poured in at one side of the top of the joint opening and worked by a flexible rod until it came up the other side.

Specifications provided that after the outside joints were completed the exposed portions of the joints be covered with burlap or damp earth for a period of at least three days or until the remaining backfill was placed. However, some contractors flooded the trench the day following the joint placing and then backfilled. Backfill had to be placed 3 ft. above the pipe before bulldozer-equipped tractors could be used on top of the pipe.

The 96-in. pipe came in 12-ft. lengths and the 72, 54, and 48-in. pipe in 16-ft. lengths. The placing of 800 ft. of 48-in. pipe was considered a good day's work by a pipe-laying crew.

Pipeline Pushed 22 Miles Across Marshland

WHEN STICKY MUD and floating turf bogged conventional pipe-laying equipment, Associated Contractors & Engineers, Houston, Tex., literally pushed a 14-in. pipeline across 22 mi. of Louisiana's

marshlands with power winch and side-boom tractor. Part of a 65-mi., \$1,509,000 pipeline job for Humble Oil & Refining Co., the line was shoved across the marsh in 8 sections, each up to 3 mi. long.

Spudded in at 6-mi. intervals on the 22-mi. swamp crossing, and straddling a 2x2-ft. pipe trench plowed by marsh buggies, pontoon-mounted winches pushed the long sections across the flats by pulling toward them 200-ft. lengths of pipe as they were welded into the lines behind the winches. One winch worked two stretches of pipe, pushing each way lengths up to 16,000 ft. Sideboom tractors on timber plank runways handled the 200-ft. sections, welded on the job from 40- or 50-ft. mastic-coated lengths, and aided the winch by walking the rear of the pipe forward toward it during the shove. A floating bull plug of 16-in. lightweight pipe 20 ft. long was welded to the first section of each line to exclude water and buoy the front end above trench bottom to prevent it from burying as it was pushed across the marsh. Despite the tough pipe-laying conditions and 2,500 field welds, the completed 22-mi. line showed no leaks under a test pressure of 1,050 psi.



←
STRETCHING TO HORIZON in water-filled trench, 3-mi. length of pipeline is shoved across marshland as gasoline-powered winch helped by side-boom tractor pulls 200-ft. rear section of 14-in. pipe ahead. Marsh crossing, 22 mi. long, is made in 8 stages.

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB



By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

to apply the payments, as the Missouri, New York and Wisconsin courts have ruled that even in this case the material-man may make the application. On the other hand, the Georgia, Illinois, Iowa and Nebraska courts have ruled that the payment must be applied to the account of the owner whose money was the source of the payment.

"When the material-man has furnished at the same time material to one contractor for the improvement of the property belonging to different persons, and has full knowledge of the separate contracts, and money is paid to the material-man by the contractor from time to time on account of the material so furnished, it is incumbent upon the material-man to keep separate accounts on what contract the money is paid, and to what account it should be applied," says the Iowa Supreme Court in a case on this phase of the question.

Of course, if the material-man knows that the money was paid to Tractor Conn by a particular owner, he must apply it accordingly.

The Case of the Appropriated Payments



When Tractor Conn buys building materials from a material-man whom he already owes on previous accounts and makes a payment on account intending that the payment shall be applied to the materials for the building which he is erecting, may the material-man apply the payment on the old account and put a

lien on the building for the full amount of the material furnished therefor?

On this point the general rule is that Conn at the time of making the payment may apply, or "appropriate", it on any account he pleases, and the material-man is bound to apply it accordingly.

In one case the material-man asked for a payment on a particular account. In response to that demand Tractor Conn sent a check without saying what account he wished it applied on and the Court ruled that the payment must be applied to the account referred to and that the material-man could not hold a lien on that work for the amount of the check.

Then there is the case where Tractor Conn makes a payment with nothing to show the source from which he received the money. On this point the rule is that the material-man may apply the payment on an old account and assert a lien for the full amount against the owner concerned.

If the payment is made from money received from a particular owner, the law is not uniform on the right

The Case of the Building Permit



"No person, firm or corporation shall erect or repair any building whatsoever without first having applied for and obtained a building permit from the building inspector," a California city ordinance provided.

"This contract shall be carried out and the said building erected without obtaining any building permit therefor," one clause of one of Tractor Conn's contracts read. The building was to be erected in the city where the aforesaid ordinance was in force.

Conn failed to live up to his part of the agreement, and the owner sued for damages.

"A contract to construct a building contrary to law cannot form the basis of a civil action, so you have no case against me, even if I broke my contract, which I do not admit," Conn argued.

The California Courts, in a case reported in 43 Pac. 967, ruled in Tractor Conn's favor.

**More Legal Adventures of
Tractor Conn Next Month**



NEW CHANNEL FOR MOHAWK RIVER is blasted through rocky point of land around which river flows in sharp elbow. Railroad, now on $7\frac{1}{2}$ -deg. curve around river bend, will be realigned to $1\frac{1}{2}$ -deg. curve on new embankment to be constructed across present channel at left after river diversion.

TOUGH ROCK JOB

Shifts Mohawk River for N.Y.C. R.R. Line Change

ELIMINATION of the "slow order" Gulf Curve on the New York Central 4-track main line at Little Falls, N. Y., involves blasting a new channel for the Mohawk River through extremely tough rock and building a new railroad embankment in the present river channel. The curve, subject to slow order since the inauguration of high

speed train service, and the scene of one major wreck, will be reduced from $7\frac{1}{2}$ to $1\frac{1}{2}$ deg. Walsh Construction Co., contractor on the \$2,500,000 project, worked throughout the winter excavating much of the 138,000 cu. yd. coming out of the new channel cut. Rock is so tough that drill points last only a few inches, seldom cutting

more than 15 in. before dulling.

At present, the railroad roughly parallels a sharp elbow in the river. To flatten the track curve, a new channel 20 ft. deep at normal water level is being cut through the point of land forming the elbow, after which the apex of curve will be moved 340 ft. riverward to new embankment to be

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EARTH IS STRIPPED from site of cut (below) and wagon drills sink blast holes to take rock down in 12-ft. lifts. There is 100,000 cu. yd. of rock excavation in 600-ft. long channel cut, 150 ft. wide and average of 36 ft. deep.



constructed in the present river bed. The channel cut is 600 ft. long and 150 ft. wide at the bottom, with side slopes of 1 on 4. Maximum cut is 66 ft. deep, the average is 36.

The new channel is excavated in the dry. Walsh left a rock dike in place at the upstream end of the cut and drove a circular-cell sheet-pile cofferdam to close off the lower end. Cells are 32 ft. in diameter of 30.7-lb. shallow-arch sheeting 20 to 60 ft. long driven around a floating timber template with a McKiernan-Terry No. 7 air-operated hammer. There are 76 sheets in each cell, and two 8-sheet diaphragms connect adjacent cells. One end of the 7-cell string is anchored to a 16x20-ft. rock-filled crib of 12x12 timbers, tailored to fit river bottom, and with water face sheeted. To seal the other end of the cofferdam, a small auxiliary rectangular cell of 21 sheets was loosely placed in a convenient cleft in the rock wall of the river's channel, and the cell filled with gravel to expand it tightly against the rock. Cells were placed by a Northwest No. 6 crane walking out on the gravel-filled units as they were completed. In all, 19,000 cu. yd. of gravel was dumped to fill and seal the cofferdam.

Of the 138,000 cu. yd. of excavation on the project, 100,000 yd. is rock—a dense, hard gneiss. After earth overburden is stripped with dozer and shovel, rock is taken down in 12-ft. lifts with Gardner-Denver wagon drills downholing



CELLULAR COFFERDAM seals downstream end of cut. Northwest crane dumps gravel into driven cell as floating template is readied for sheet piles of next unit.

→
EXCAVATION
PROGRESS of 750 cu. yd. of rock per day pleases general contractor's field men. They are (l. to r.): NICK HECK, superintendent; DICK DILLON, job engineer; WES THOMAS, assistant engineer; all of Walsh Construction Co., Davenport, Iowa.



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WINTER WEATHER doesn't stop Walsh Construction Co.'s railroad relocation job at Little Falls, N. Y. Lima shovel and Northwest clamshell (below) continue to load out blasted rock while wagon drills put down holes for next shot.





DRILLING CONTINUES as Markley-Carter dust collectors are wheeled into position near Gardner-Denver wagon drills. Powder consumption on tough rock job averages only $\frac{1}{2}$ lb. of 60-percent gelatin dynamite per cu. yd.

on 5-ft. centers. The rigs drill a $2\frac{3}{4}$ - to $1\frac{7}{8}$ -in. hole with forged bits on hollow round steel and average 13 ft. of hole per hr. per machine. Hardness of the gneiss being drilled makes sharpening necessary after an average of 15 in. of hole per point. In extreme cases, bits have gone as little as 2 in. before dulling. The project drill shop is equipped with three Gardner-Denver sharpeners (one of which is a standby), along with furnaces, quenching tanks and as-

sociated equipment, and turns out an average of 560 sharpened steels per day.

A 3,000 - ft. electrically - driven Chicago Pneumatic compressor supplies air through a 4-in. pipeline to seven drills in the channel cut, while a portable 500-ft. Gardner-Denver powers two wagon drills putting down holes for track excavation across the river. A 300-ft. Jaeger furnishes auxiliary power.

Excavation is complicated by

numerous potholes formed by the grinding action of entrapped boulders when the river flowed over a falls on the site of the cut in past ages. Potholes are clammed out before drilling; otherwise the debris and earth fill binds the drill steel.

After drilling, average holes are loaded with eight to ten $\frac{1}{2}$ -lb. sticks of Hercules 60-percent gelatin dynamite stemmed with sand. Blasts are usually set off in 80-hole rounds with 3-delay exploders fired electrically. Powder consumption averages $\frac{1}{2}$ lb. per cu. yd.

Loading Operations

Rock is excavated at the rate of 750 cu. yd. per day by a force of 110 men on a 6-day, 48-hr. week. A 3-yd. Lima shovel, a Northwest No. 6 with $\frac{7}{8}$ -yd. dipper, and two clamshells, a Northwest 80D and a Lorain Motocrane, load blasted material into a fleet of four 15-yd. bottom-dump wagons and six 10-yd. rear-dump trucks—all Euclids. The contractor is allowed to dump now into the present river channel at future embankment location, so long as the river's established minimum cross-section at normal water stage is not reduced. This permits 20,000 cu. yd. of fill in the river, and Walsh takes advantage of it in disposing of rocks larger than 5 cu. yd., which are dumped near the river bank and tipped into the water by bulldozer. Smaller blasted rock is trucked across a 130-ft. construction bridge

WAGONS AND TRUCKS (below) haul blasted rock loaded by Motocrane. At rear is rock dike temporarily left in place to seal upstream end of cut while new channel is excavated in the dry.



BATTERY OF WAGON DRILLS (below) sinks downholes on 5-ft. centers along rim of one of numerous potholes on site. Hard rock dulls bits after average of 15 in. of drilling.



and stockpiled on the other side of the river for later use in embankment. Earth is disposed of in a spoil bank.

When the main channel excavation is completed, estimated for May 1, the downstream cofferdam will be pulled. The dike remaining at the upper end of the channel will be cut down to water level, then drilled and blasted in one shot to full 20-ft. depth. Blasted material will be removed by clamming with floating rigs.

The contractor expects to use equipment now on the job to construct the new railroad embank-

ment, working out from shore. An estimated 220,000 cu. yd. of rock will carry the embankment 11½ ft. above water, and 200,000 cu. yd. of gravel will take it up an additional 30 ft. Side slopes will be 1½ on 1 for rock, 1¾ on 1 for gravel; with top width of embankment 63 ft. The needed rock borrow will be blasted locally, and gravel will be obtained from a nearby pit. Two main-line concrete and steel-beam bridges, a 67-ft. span over a highway and one of 25 ft. over a depressed industrial siding, are also included in Walsh's \$2,000,000 contract. Railroad forces will shift

track and signal lines to new location at an additional estimated cost of \$500,000. A total of 23,100 ft. of track will be laid, 13,500 ft. of which will be new.

The work is under the general direction of George A. Noren, chief engineer, New York Central System, Buffalo and East, and supervised by R. H. Kugler, engineer of construction. John Ehinger is resident engineer for the railroad. Walsh Construction Company, Davenport, Iowa, is represented at Little Falls by Nicholas Heck, superintendent, and Richard J. Dillon, engineer.

LONG HAULS BY TWO METHODS

FOR HAULING FILL MATERIAL distances of 1 mi. or more, two West Coast contractors employed contrasting equipment, one utilizing a tracklaying tractor pulling tandem scrapers and the other operating trailer wagons drawn by rubber-tired tractors.

On one job, McNutt Bros., Eugene, Ore., used an outfit consisting of a Caterpillar D8 tractor and two 15-yd. scrapers which could be loaded by the tractor without assistance of a pusher in ideal material at the cut. This outfit on a 1-mi. haul made 1½ round trips per hr. and delivered 20 cu. yd. of excavated material on each trip, or 30 yd. an hr.

At the other job, Leonard & Slate, Portland, Ore., hauled material loaded by an excavator in two rubber-tired DW10 tractor-wagon combinations to a fill a little more than 1 mi. from the cut. Each of these units delivered 55 cu. yd. of excavated material per hr.

Both of the jobs were on highway relocations. McNutt Bros. worked under the direction of the Oregon State Highway Department on 4½ mi. of new location eliminating curves in the old route between Coyote Creek and Grace

Creek. This project involved 843,000 cu. yd. of excavation. The Leonard & Slate operation was on a relocation of U. S. 99 for the Washington State Highway Department near Woodland, between Portland and Seattle.

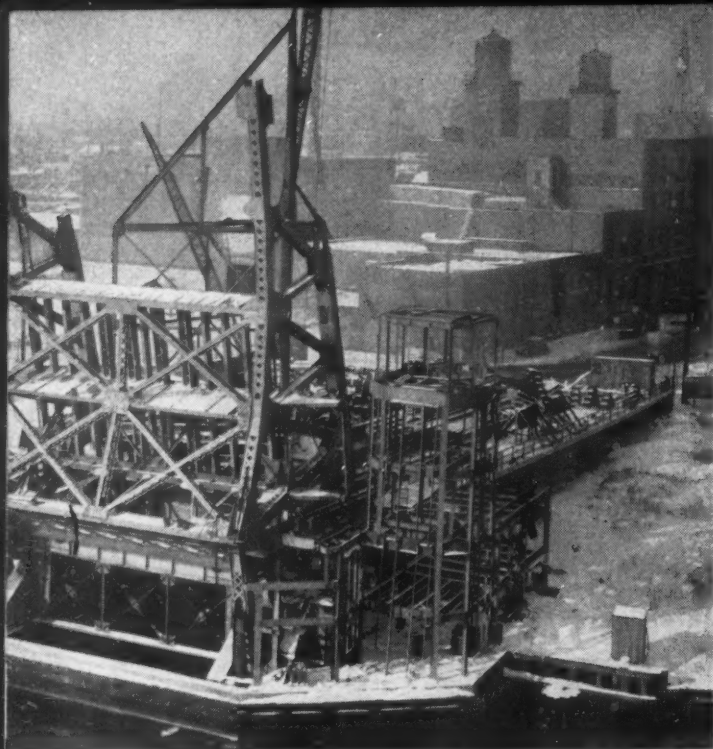


SELF-LOADED IN IDEAL MATERIAL, without pusher help, tractor scraper outfit comprising 113-drawbar-horsepower tractor and two 15-yd. scrapers makes 1½ round trips per hr. on 1-mi. haul from cut to fill.

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PAIR OF 11-YD. RUBBER-TIRED UNITS (below), loaded by excavator and powered by 100-hp. diesel engines, delivers total of 110 cu. yd. per hr. of excavated material to fill on one-way haul of little more than 1 mi.



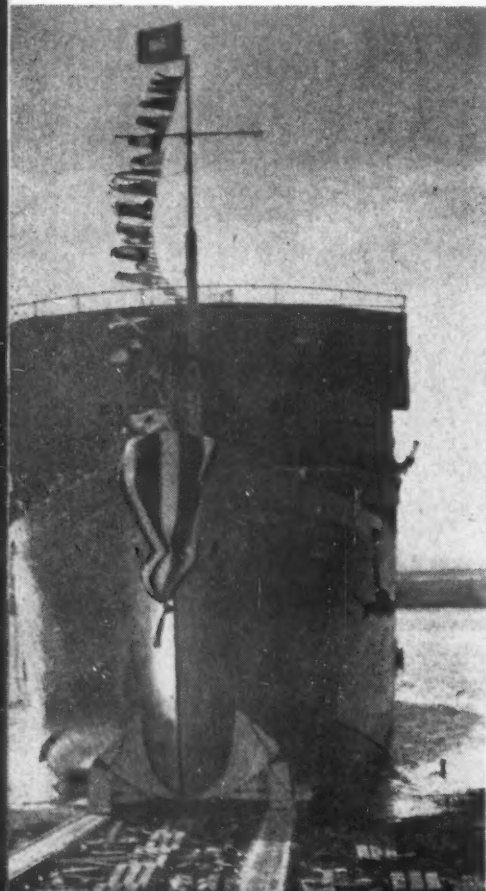
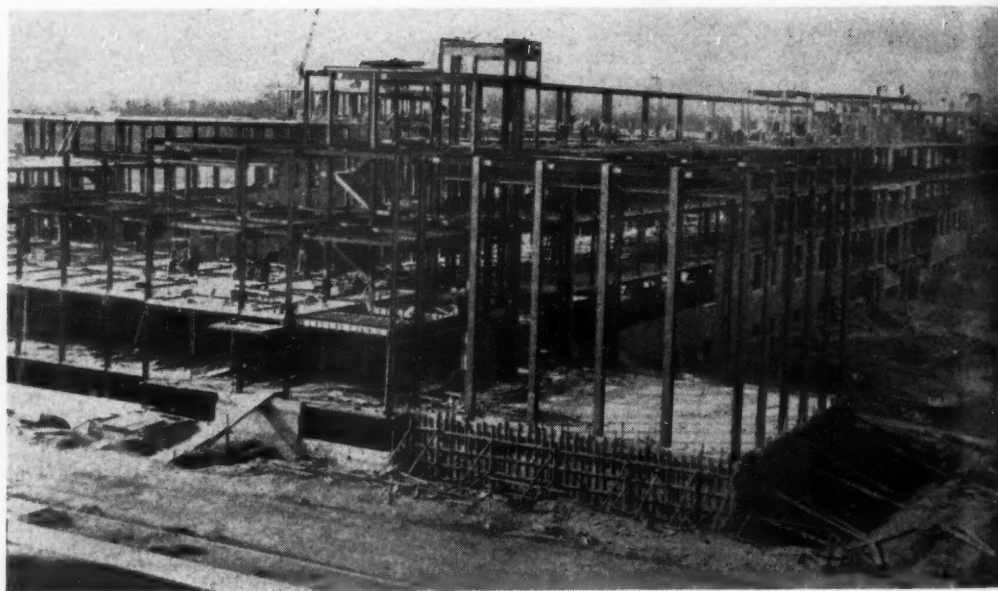


NORTH LEAF of Chicago's Canal St. Bridge, begun in October, 1946, is 40 per cent completed. Mount Vernon Bridge Co. is erecting superstructure under \$740,000 contract. All movable steel was erected in temporary position without support from trunnion bearings. After bearings are received, huge mass of steel must be adjusted vertically and horizontally to line and grade for final position on bearings. City hopes to open \$1,800,000 double-leaf bascule bridge to traffic by end of year.

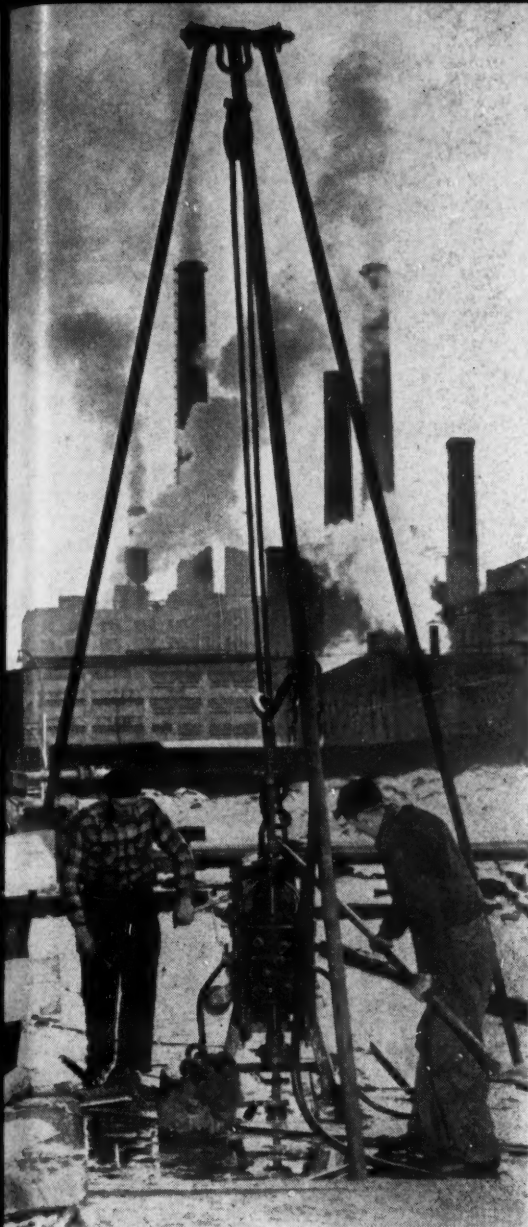
THIS MONTH'S NEWS REEL

ADMINISTRATION BUILDING at White Oak, Md., is being constructed by Chas. H. Tompkins Co., of Washington, D. C., as part of vast Navy ordnance research laboratory. Project, approved in 1944, will cost \$15,000,000.

Press Assn. Photo

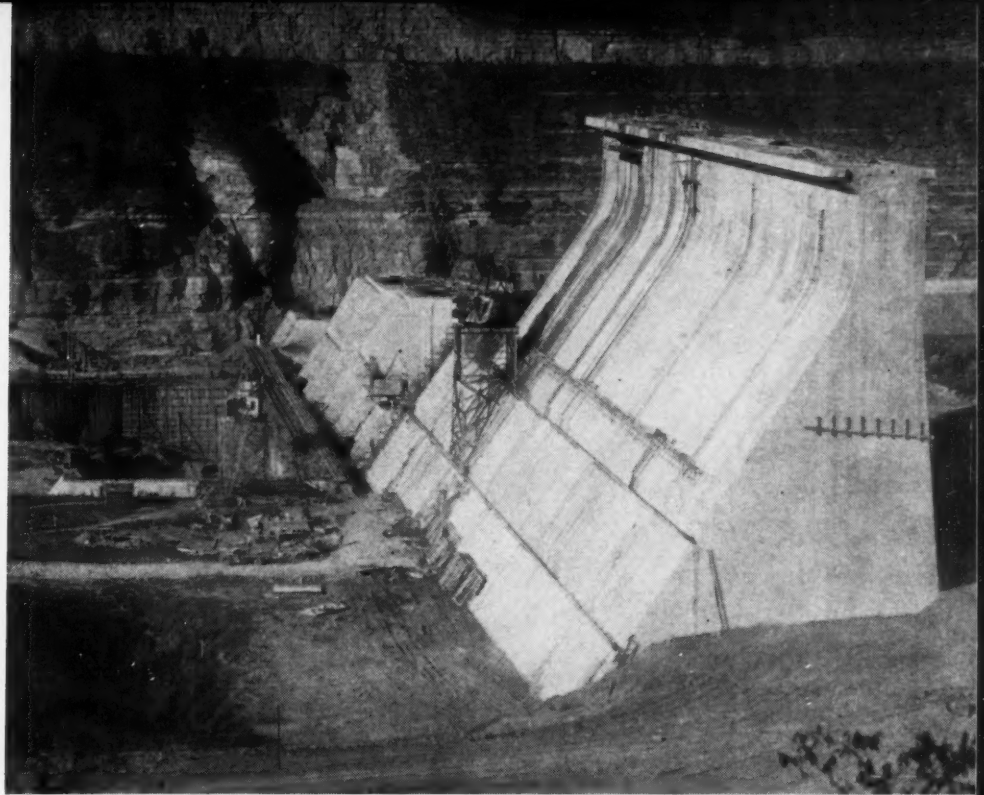


NAMED FOR CHIEF ENGINEER of American Expeditionary Forces in France during World War I, the late Major Gen. William C. Langfitt, big hopper dredge Langfitt slides down launching ways of Ingalls Shipbuilding Corp. at Pascagoula, Miss. Built for U. S. Engineer Department and largest welded ship of its type, the Langfitt, one of four sister vessels, is 352 ft. in length and is equipped to travel anywhere in world to dredge harbors and channels. Group at christening ceremony includes **MRS. HARRY L. HENSLEE**, sponsor, Corps of Engineer officers and others (left to right): **COL. A. A. KIRCHOFF**, **MAJOR A. H. McCRAE**, **MRS. J. J. BAILEY**, **COL. P. T. SAMUEL**, **MRS. HENSLEE**, **COL. M. F. BALLANCE**, resident engineer, and **Col. W. A. CHABERT**.



TEST BORINGS are made at East River Drive and 47th Street in New York City to determine nature of subsoil on future site of permanent headquarters of United Nations.

Press Assn. Photo



CENTER HILL DAM on Caney Fork River near Cookeville, Tenn., is 240-ft.-high concrete structure (with earth embankment extension) being built under direction of U. S. District Engineer office at Nashville by Massman-Metcalf-Hamilton Construction Cos. Total crest length of 2,160 ft. includes 1,382-ft. concrete section and 778 ft. of earth embankment. Quantities comprise 930,000 cu. yd. of concrete, 2,500,000 cu. yd. of earth embankment and 610,000 cu. yd. of excavation. Concrete is placed by buckets and cranes on elevated tracks supported by 6-ft.-dia. concrete columns 50 ft. tall embedded in structure as concrete level rises in 5-ft. lifts and also by crane rigs on steel gantries supported on inclined downstream face of structure.

Press Assn. Photo

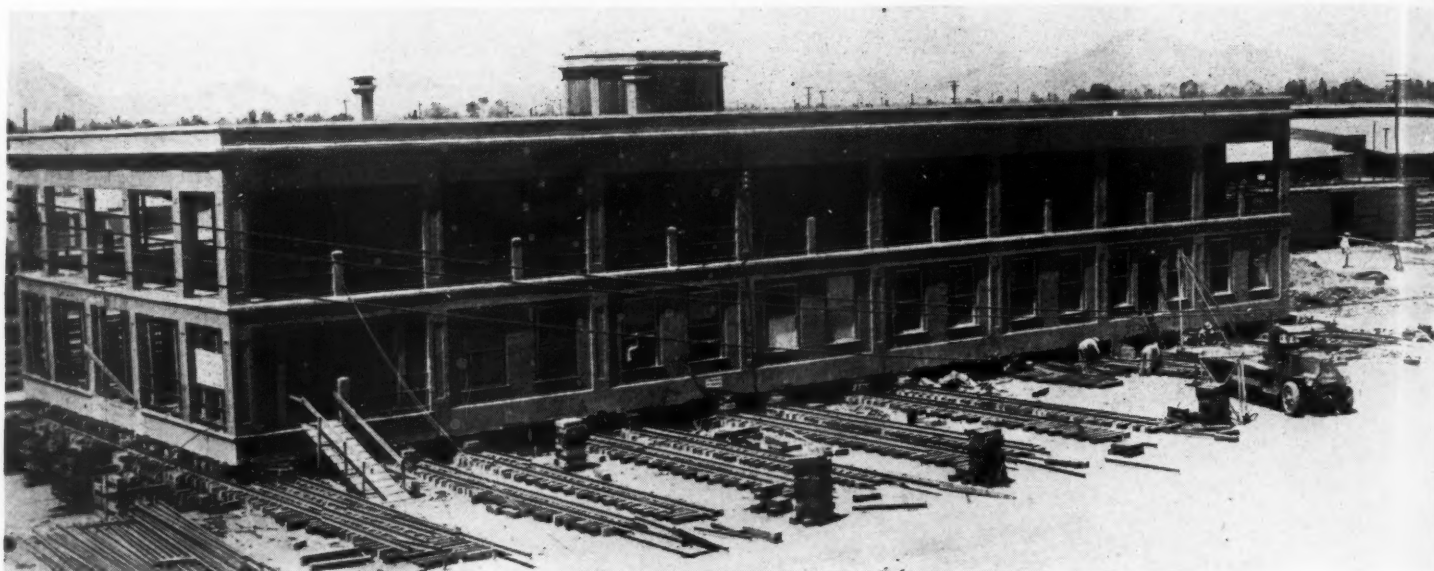
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GEORGE S. BARTLETT AWARD for distinguished work in highway engineering during 1946 is presented to CHARLES M. UPHAM (right), engineer-director, American Road Builders' Association by CONGRESSMAN JENNINGS RANDOLPH of West Virginia at 44th annual banquet of A.R.B.A. in Chicago.



IN COMMUNITY HOMES PROJECT (below) at Los Angeles, Calif., Henry J. Kaiser is erecting 10,000 prefabricated homes built in his own plant for veterans.



Concrete Building Moved by WINCH TRUCKS



REINFORCED CONCRETE BUILDING built in 1913 is relocated to make way for Southern Pacific's railroad yard expansion at Phoenix, Ariz. Necessary utility supply is uninterrupted and office building remains occupied during move.

WHEN CONSTRUCTION of additional tracks at the Southern Pacific Co.'s Phoenix, Ariz., railroad yards necessitated relocation of a two-story reinforced concrete store and office building, Star House Movers, Inc., Los Angeles, shifted the 2,000-ton structure while the building continued in use. Some 10,000 cribbing blocks furnished a base on which lines of railroad rail

and steel rollers supported the structure as anchored winch trucks rolled it 250 ft. to new position.

Preparatory to moving the structure, which was 66x145 ft. in plan, concrete curtain walls between exterior basement columns were broken out and cribbing of 6x8-in. Oregon pine blocks 4 ft. long was built up along all column lines. Strings of 75-lb. railroad rail set

on the cribbing alongside the columns supported rollers of 1 7/8 x 30-in. steel shafting assembled on the column line in groups of eight on either side of each column. Roller sets were topped with a 1/4-in. steel plate or shoe, and timber blocking was wedged between shoes and first floor girders to support the building when columns were cut.

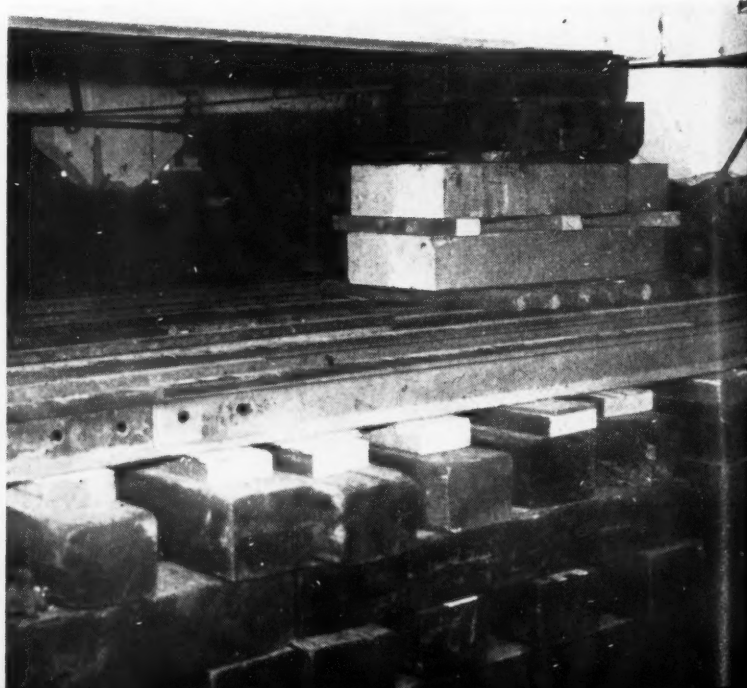
Columns were cut off 2 ft. below

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10,000 TIMBER CRIBBING BLOCKS (below) support rails on which 2,000-ton building is rolled. Wood wedges beneath rails and in girder blocking assure even bearing during 250-ft. move.



COLUMNS ARE CUT (below) and structure is ready to go. Steel plate, 16x1/4x48 in., between rollers and blocking, prevents crushing of timbers.





WINCH TRUCKS anchored to deadmen, and with wheels blocked, pull structure along lines of railroad tee rail. Building is rolled average of 10 ft. per hr. on first leg of journey.

girder brackets, and with two hydraulic jacks giving an initial shove, the structure was rolled by three winch trucks anchored to deadmen. Hauling tackle from the trucks ran beneath the building to 16x18-in. fir timbers set against the outside of the first floor rear spandrel so that the structure was pushed rather than pulled.

After a move of 73 ft., which

was on slight gradient to raise the building 9 in. to new elevation, cribbing, rails and roller sets were re-oriented at right angles to their original position and the building rolled 177 ft. farther to final location above a previously constructed foundation. Columns were poured between new footings and the pendant stubs of the original columns and after 18 days the crib-

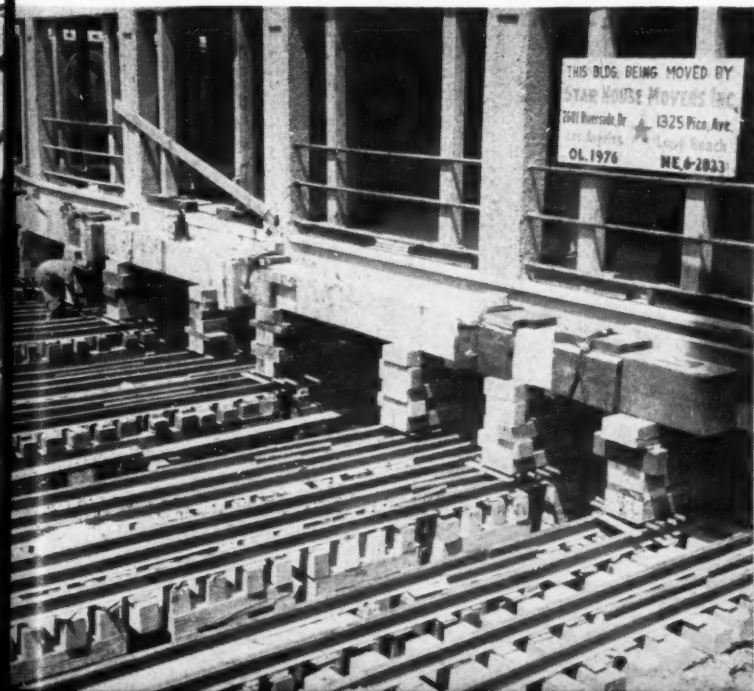
bing was removed to complete the relocation job.

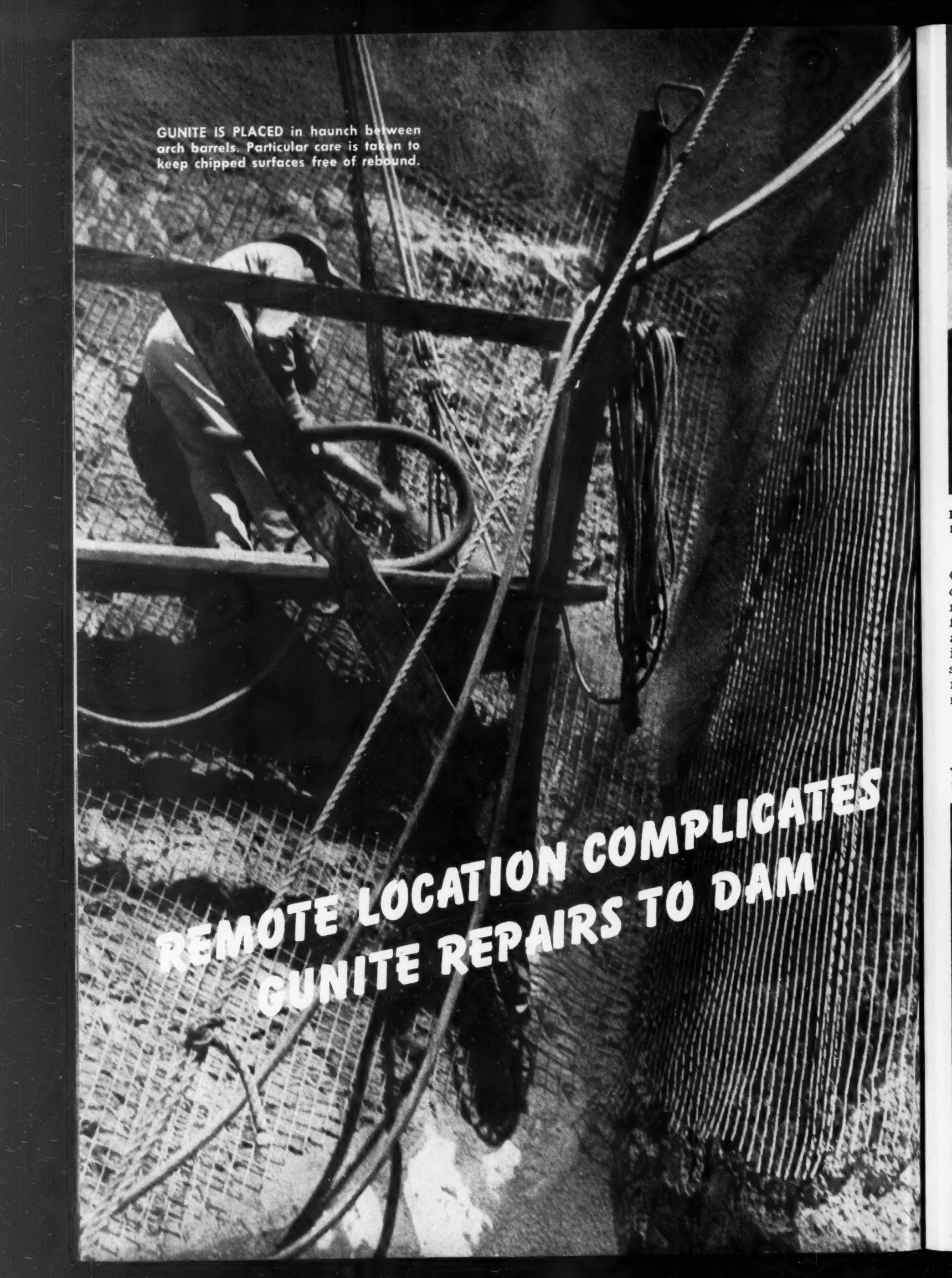
The project was under the general direction of E. E. Mayo, chief engineer, Southern Pacific Co., and was supervised by the railroad's Tucson Division forces for whom G. A. Bays is division superintendent and T. W. Saul division engineer. Gus Schneider, assistant engineer, was resident.

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CABLES FROM WINCHES are fastened to timbers behind building (below) to shove rather than pull structure. Note 8x8-in. temporary posts between first and second story floor systems.

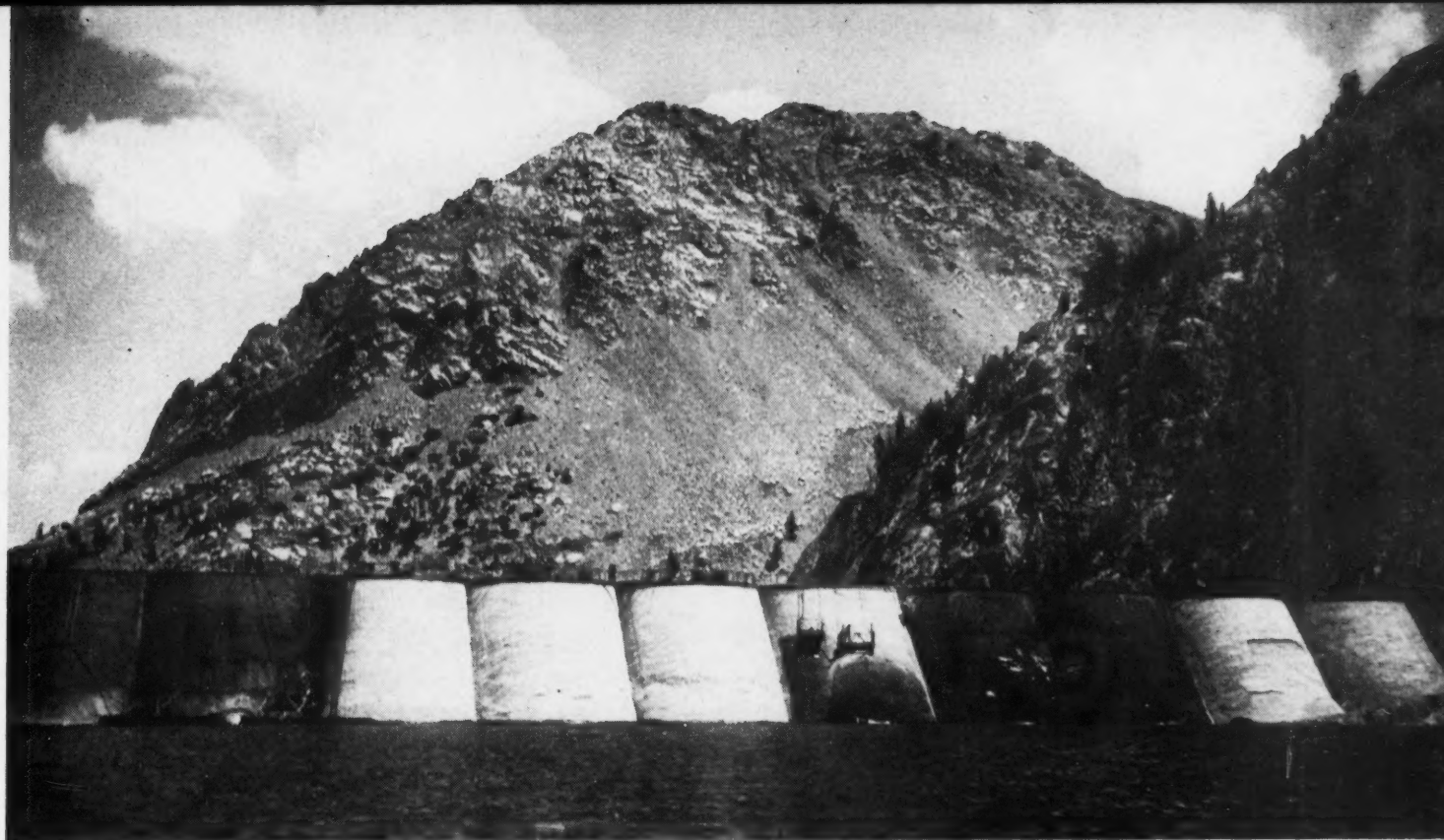
SECOND LEG of right angle trip is made after supports are turned (below). Original basement is at left.





GUNITE IS PLACED in haunch between arch barrels. Particular care is taken to keep chipped surfaces free of rebound.

**REMOTE LOCATION COMPLICATES
GUNITE REPAIRS TO DAM**



LOCATED AT EL. 9,050 in High Sierra of California, thin concrete arches of this structure of Gem Lake Dam are subjected to temperatures ranging as low as 25 deg. below zero.

GUNITE REPAIRS to spalling concrete are routine operations on most jobs, but they become a difficult construction procedure when applied to a dam at 9,050-ft. elev. in the High Sierra where the season is short and five transfers are required for transportation of all materials and supplies. The job

involved placing a new Gunitite coating over 35,000 sq. ft. of the upstream face of Gem Lake Dam, a multiple-arch concrete structure built in 1915 by the California Electric Power Co. in Mono County, Calif. Located at El. 9,050, the thin-section dam is subject to severe frost conditions, and ex-

tensive repair work has been necessary from time to time.

The only route by which materials and equipment can reach the dam is by long truck haul to the remotely-located Rush Creek powerhouse on the east side of the Sierra Nevada Mountains some 380 mi. north of Los Angeles.

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TRANSFER POINT between barge and second incline lift (below), which are fourth and fifth steps, respectively, in which materials move to repair job.





ONE OF MIXING DEPOTS is on downstream side of dam. Mixer in background and cement gun in foreground.



From this point a 4,800-ft. tramway climbs steep grades (up to 68 percent) to Agnew Lake 1,300 ft. above the Rush Creek plant. At the upper end of this tramway, freight is transferred to a barge, towed across the lake, transferred again to a 1,750-ft. tramway for another 500-ft. lift (grades up to 70 per cent) to a landing near Gem Lake Dam. At this upper landing a cableway picked up the materials for delivery to mixing depots along the downstream face of the dam. From two such depots Gunitite was delivered to crews working on the face of the dam.

Chipping Operations

The first operation was to chip off about 1 in. of concrete from the upstream face. This was done from scaffolds lowered down the face of the arch barrels, and after a hosing operation to clean off the chipped surface reinforcing steel was fastened to the roughened surface and a layer of Gunitite, 2 to 3 in. thick, was shot on.

The season at this altitude is very short and to avoid night freezing temperatures every endeavor was made to speed the work. Part of the chipping was done in the latter part of the preceding season and it was not until July 9 in the following season that it was possible to resume work on the project. By advance planning, however, the field work was concentrated into a period of less than a month and the Gunitite was well hardened before freezing temperatures set in. The mix used was $4\frac{1}{2}$ parts of graded sand to 1 part of cement and the coating was immediately covered with a curing compound to retain the moisture in the mix.

The contract for the chipping of the surface and placing the Gunitite coating was held by the Emsco Concrete Cutting Corp., of San Francisco, under the general supervision of J. H. Darling. E. J. Waugh was the construction engineer for the California Electric Power Co. and E. I. Bulpitt was in charge for the power company at the dam.

← FROM MIXING DEPOT BELOW DAM air hose extends over top of structure. From Gunitite machine, delivery hose passes through hole in arch barrel made expressly for this purpose and later plugged.

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CEMENT ON PALLETS handled by slings make same five transfers as do gravel enroute to dam.

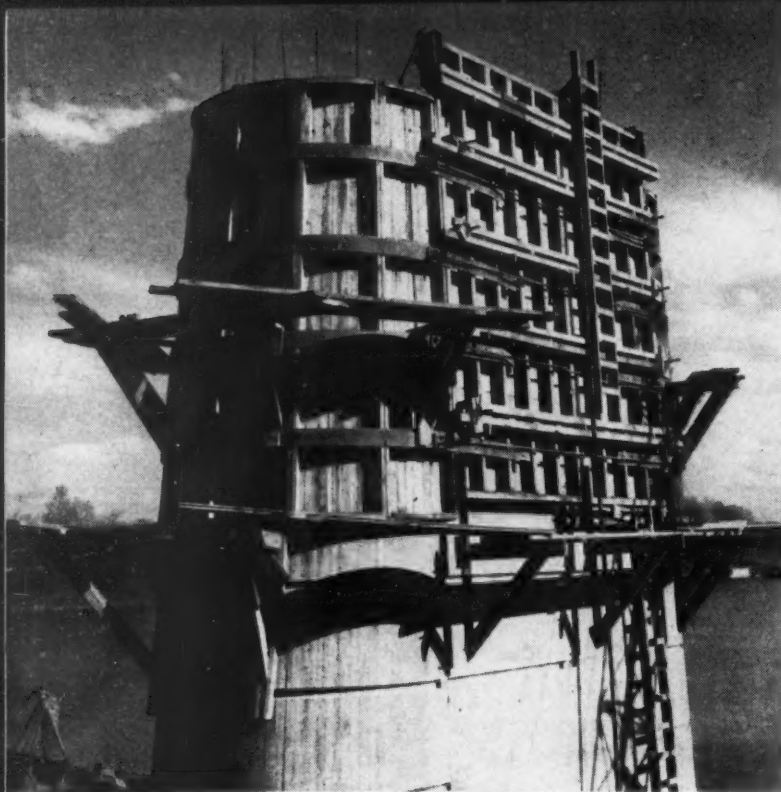
MATERIAL TRANSPORTATION DIFFICULTIES are indicated by route of this skip-load of gravel (below) filled at Rush Creek power house, end of truck haul. A 4,800-ft. tramway then lifts it to Agnew Lake for barge trip to another tramway 1,750 ft. long, whence it is transferred to this cableway, fifth step in delivery of materials.



CHIPPING 35,000 sq. ft. of face of dam provides bond with sound concrete. About 1 in. of surface material is removed.

AFTER CHIPPED SURFACE is thoroughly washed down, 2-in. mesh of 12-gage wire (below) is fastened to concrete surface. Curved lines on concrete surface mark edges of old patches which were found to be sound.





CURVED FORMS, consisting of wood panels around which pass metal straps tightened by nuts on threaded ends of tierods, are devised by John F. Casey Co., constructors, Pittsburgh, Pa., for semicircular noses on upstream and downstream ends of tall concrete piers built to carry bridge for Baltimore & Ohio R.R. across Little Kanawha River at Point Pleasant, W. Va. Piers are toed into rock 52 ft. below water surface and were constructed within open sheetpile cofferdams. Tops of piers are 60 ft. above river level. Contract called for 4 river piers and 22 land piers.—Photo from S. L. FULLER, president, John F. Casey Co., Pittsburgh, Pa.

HOW

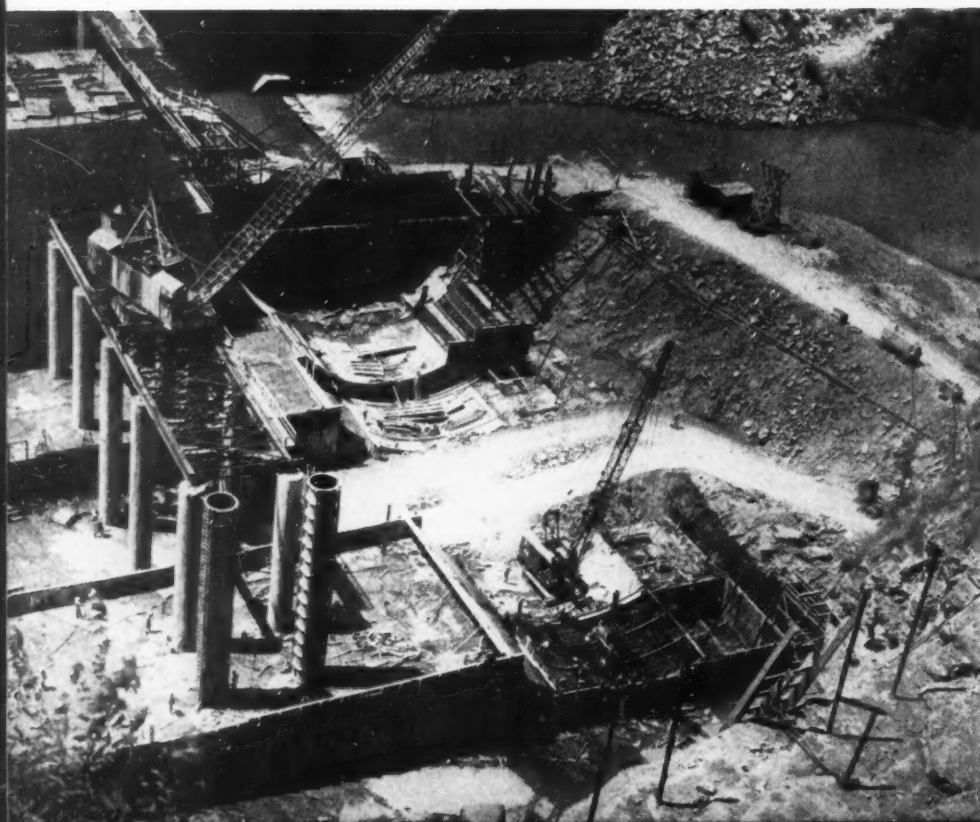
They Did It

CONSTRUCTION DETAILS

*For
Superintendents and Foremen*



PORTABLE REPAIR SHOP equipped to handle tractor breakdowns in field is operated by Illinois Road Equipment Co., Springfield, Ill., Allis-Chalmers dealer. Service unit is mounted on converted Army 2 1/2-ton truck and is prepared to do complete overhaul job at scene of breakdown. Sides and end gate fold out to provide ample bench space at either side of truck.

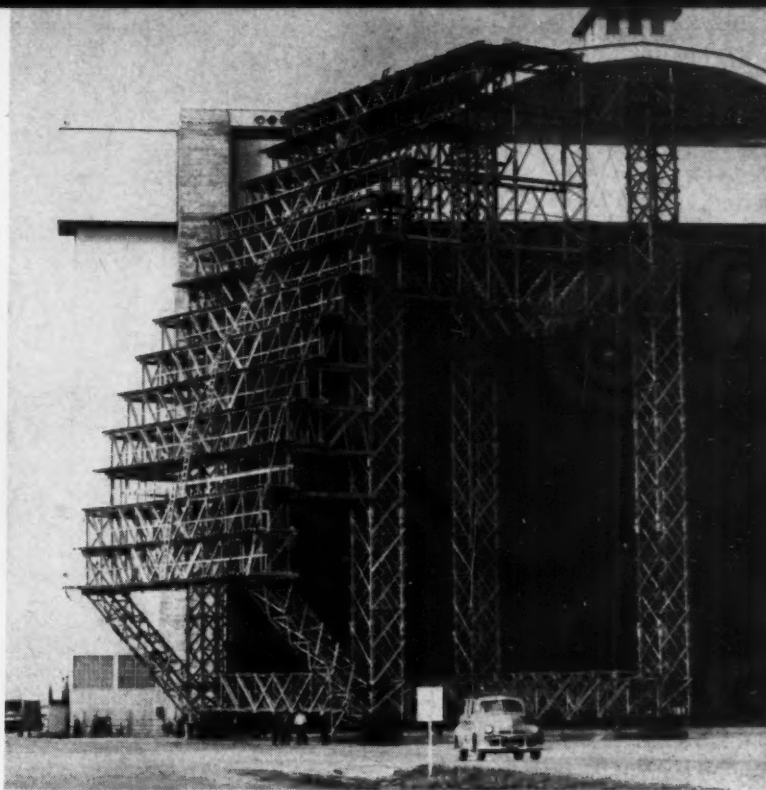


← **CONCRETE PLACEMENT** at Center Hill Dam on Caney Fork River near Cookeville, Tenn., is handled by American full-revolving crane moving on 24-ft.-gauge elevated track supported by 6-ft.-dia. reinforced concrete columns 50 ft. high, which are embedded in main body of dam as concrete is deposited from 2-cu. yd. buckets in 5-ft. lifts. Dam 240 ft. high above low point of foundation is being built by Massman-Metcalf-Hamilton Construction Cos., of Kansas City, Mo., for U. S. Engineer Department, under direction of Col. H. V. Canan, Nashville district engineer.



PILINGS FOR NEW SLIP for Annapolis Ferry on eastern shore of Chesapeake Bay are moved by Caterpillar 7S bulldozer on diesel D7 tractor. Empire Construction Co., Baltimore contractors, drive bulkhead batter piles with single-acting hammer in simple leads hanging from steam crane.

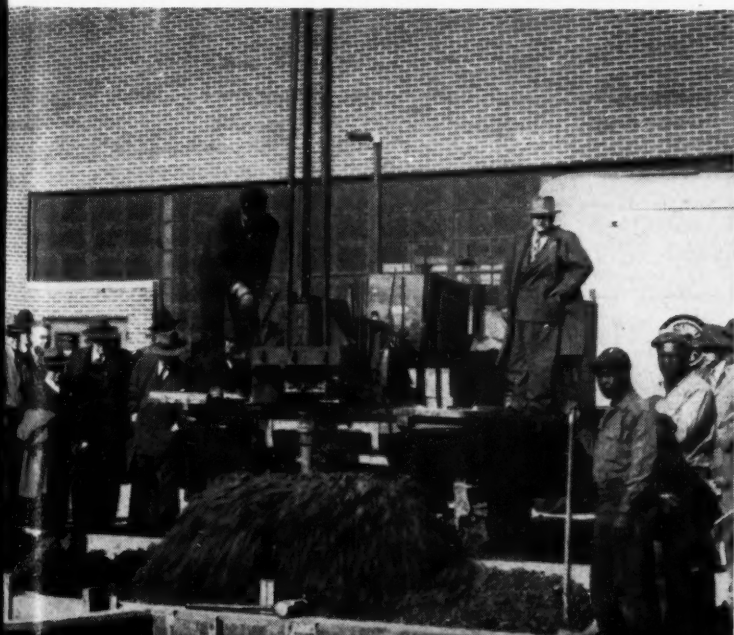
TRUSSED SCREED of aluminum alloy has been developed by Lewis & Bowman, contractors, of Knoxville, Tenn., to screed surface of highway bridge spans up to 50 ft. Made with top and bottom chord of aluminum alloy I-beam and truss diagonal members of aluminum alloy angles, it is fabricated in 10-ft. sections for ease in transporting between jobs. When assembled in full 50-ft. length, it is easily handled by four men.—Photo from J. S. LEWIS, JR., of Lewis & Bowman, Knoxville, Tenn.



TRAVELING SCAFFOLD 145 ft. high facilitates repair of Navy's huge timber blimp docks at Moffett Field, California. Base is 60 ft. square and 6x6-ft. towers at each of four corners are supported on solid rubber-tired trucks or dollies, each designed for carrying 40-ton load in house-moving service. Fifty men work on scaffold, which has 16 working platforms and can support live load of 600 lb., plus 10-lb. wind load. It moves ahead 60 ft. per shift. Contractor on job is J. H. Pomeroy & Co., Inc.

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PIER HOLES (below) for new Sinclair Refining Co. research and development laboratory at Riverdale, Chicago, Ill., are drilled by Buda earth drill. Here officials of Buda Co. and Austin Co., contractors for project, watch demonstration of how required 480 holes, each 42 in. in diameter and ranging in depth from 11 to 13 ft., were drilled in 30 min. each.



PRECAST CONCRETE BLOCKS (below) are placed in small lateral on Roza Division of Yakima Project in Eastern Washington as part of research program of United States Bureau of Reclamation to develop lower cost durable canal linings. Bureau hopes to reduce costs by mass production at central location of prefabricated blocks, which can be placed by unskilled labor without special equipment. Study will embrace all materials and techniques.



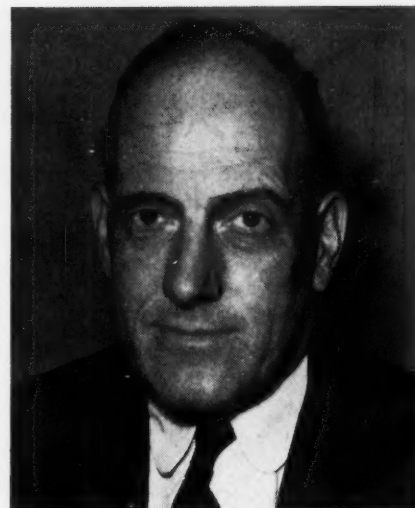
Present and Accounted For... T



HIGHWAY CONTRACTORS' DIVISION of American Road Builders' Association is headed by **HARRY E. BLAKELEY** of Nashville, Tenn., who was recently discharged as lieutenant colonel of coast artillery after six years in Army. He succeeds Burton F. Miller, who resigned to become executive secretary of Michigan Road Builders' Association.



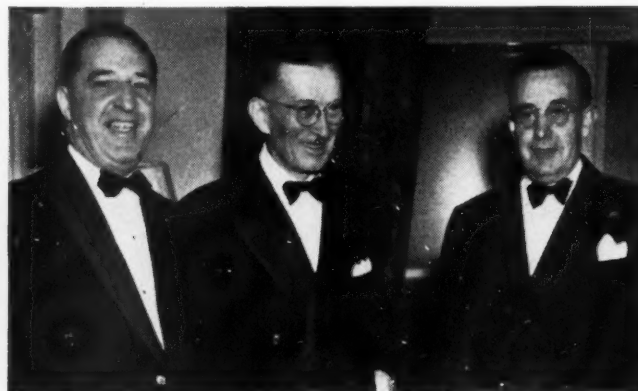
NEW CHIEF ENGINEER of Pennsylvania Department of Highways is **E. L. SCHMIDT**, who had been Pittsburgh District engineer since 1938.



APPOINTED DIRECTOR OF PLANNING for United Nations, **WALLACE K. HARRISON**, of Harrison, Abramovitz & Wiggins, will head special staff of architects, engineers and other experts in designing permanent site of UN in New York. He is president of Architectural League and served as co-designer for Rockefeller Center.



ELECTED PRESIDENT of Kansas Contractors Association is **E. C. STEWART** (left), head of Globe Construction Co., of Wichita. With him is **J. W. BALLARD**, engineer-secretary of organization.



OFFICERS of Associated Equipment Distributors are (left to right): **WILLIAM A. DANNER** of Parker, Danner Co., Hyde Park, Mass., new president; **F. B. McBATH**, of Portland, Ore., retiring president; and **A. F. GARLINGHOUSE** of Garlinghouse Bros., Los Angeles, Calif., new executive vice-president.

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NEW PRESIDENT of Constructors Association of Western Pennsylvania is **CARL J. JACOBSEN** (below) of Sharpsburg, whose company specializes in railroad bridges.



KANSAS CITY CHAPTER, Associated General Contractors, has elected as president **MILTON B. SCHWEIGER** (below), owner of Schweiger Construction Co., of Kansas City, Mo.



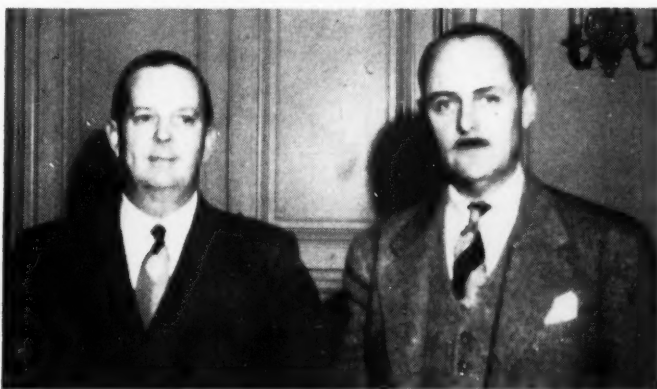
NEW PRESIDENT of Builders' Division, Oklahoma Chapter, Associated General Contractors of America, is **E. H. WALPOLE** (below), secretary-treasurer of Chas. M. Dunning Construction Co., Oklahoma City.



... TWO PAGES OF PERSONALITIES



NAMED CHAIRMAN OF BOARD of Turner Construction Co., of New York, is ROBERT C. WILSON (1) who has been with company since 1907 and a director since 1928. H. C. TURNER, JR., (2) former vice-president, was elected president to succeed Admiral Ben Moreell, who resigned to head Jones & Laughlin Steel Corp., of Pittsburgh. Other recent appointments are WALTER P. JACKSON (3) general superintendent in New York office, and NELSON L. DOE (4) vice-president.



← NEW OFFICERS of Associated General Contractors of Missouri are E. W. MENEFE (left), president of W. J. Menefee Construction Co., Sedalia, president, and ALEXANDER MAITLAND, president of Kansas City Bridge Co., Kansas City, vice-president.

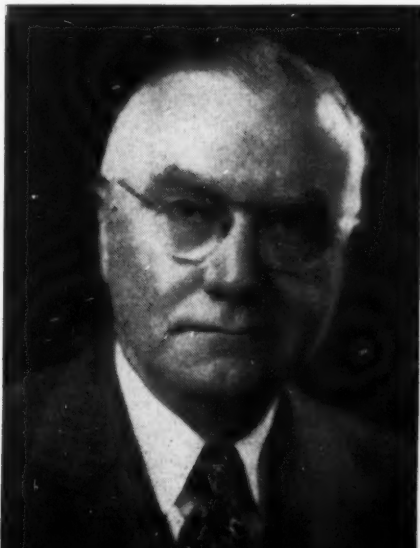


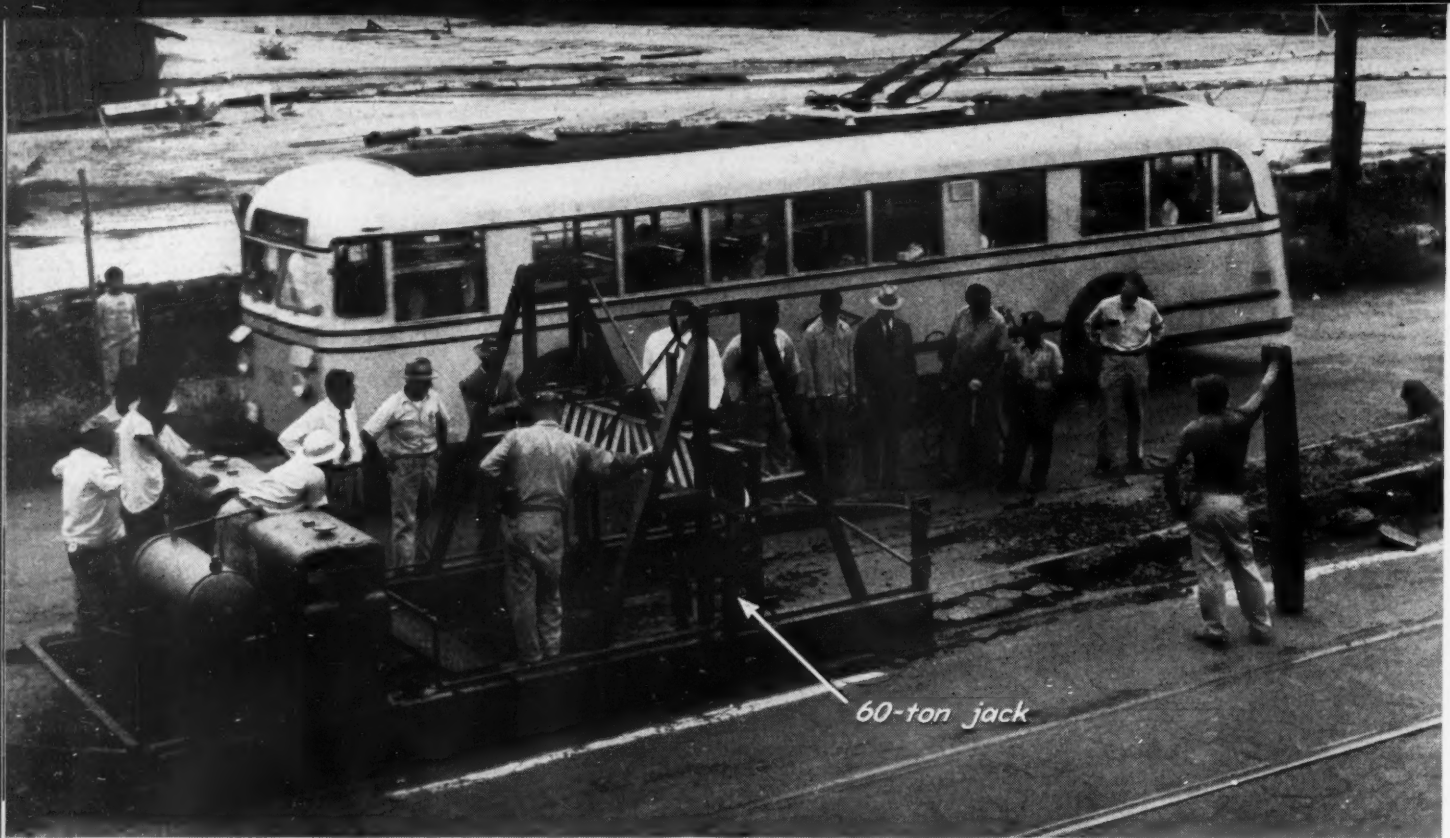
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ELECTED PRESIDENT of Building Trades Employers' Association of New York City is CARL BRANDT (below), vice-president of George A. Fuller Co., general contractors. He succeeds Peter W. Eller, who had held this office for three years. Election took place in February.

NEWLY ELECTED PRESIDENT of American Concrete Institute is STANTON WALKER (below), of Washington, D. C. He is director of engineering for both National Sand & Gravel Association and National Ready Mixed Concrete Association, as well as consulting engineer to National Industrial Sand Association.

HOUSING for John Hancock Mutual Life Insurance Co., of Boston, Mass., is directed by LUCIUS T. HILL (below), who is supervising company's first housing projects in Brookline and Roxbury and will direct investigation of other sites elsewhere in United States.





TRACK IS PULLED OUT of pavement by machine equipped with pair of 60-ton hydraulic jacks exerting push on pair of horizontal channels from which rail clamps are suspended by vertical hangers.

RAIL EXTRACTOR

Removes Car Tracks

From Honolulu Streets

EQUIPPED WITH A PAIR of 60-ton hydraulic jacks exerting a powerful upward push on the ends of horizontal steel channels from which two rail-gripping clamps on vertical hangers are suspended, a specially designed track-extracting machine has aided the Honolulu Rapid Transit Co. in removing 122-lb. rails from 19 mi. of street on which electric trolley coaches have been substituted for street cars. The device was designed by Edward de Harne, chief engineer for the transit company, and was built largely of scrapped materials and equipment. After the operating crew had been trained in its use, the machine extracted track in 20-ft. sections from concrete and asphalt paved streets at the rate of 1,000 ft. in 3 hr.

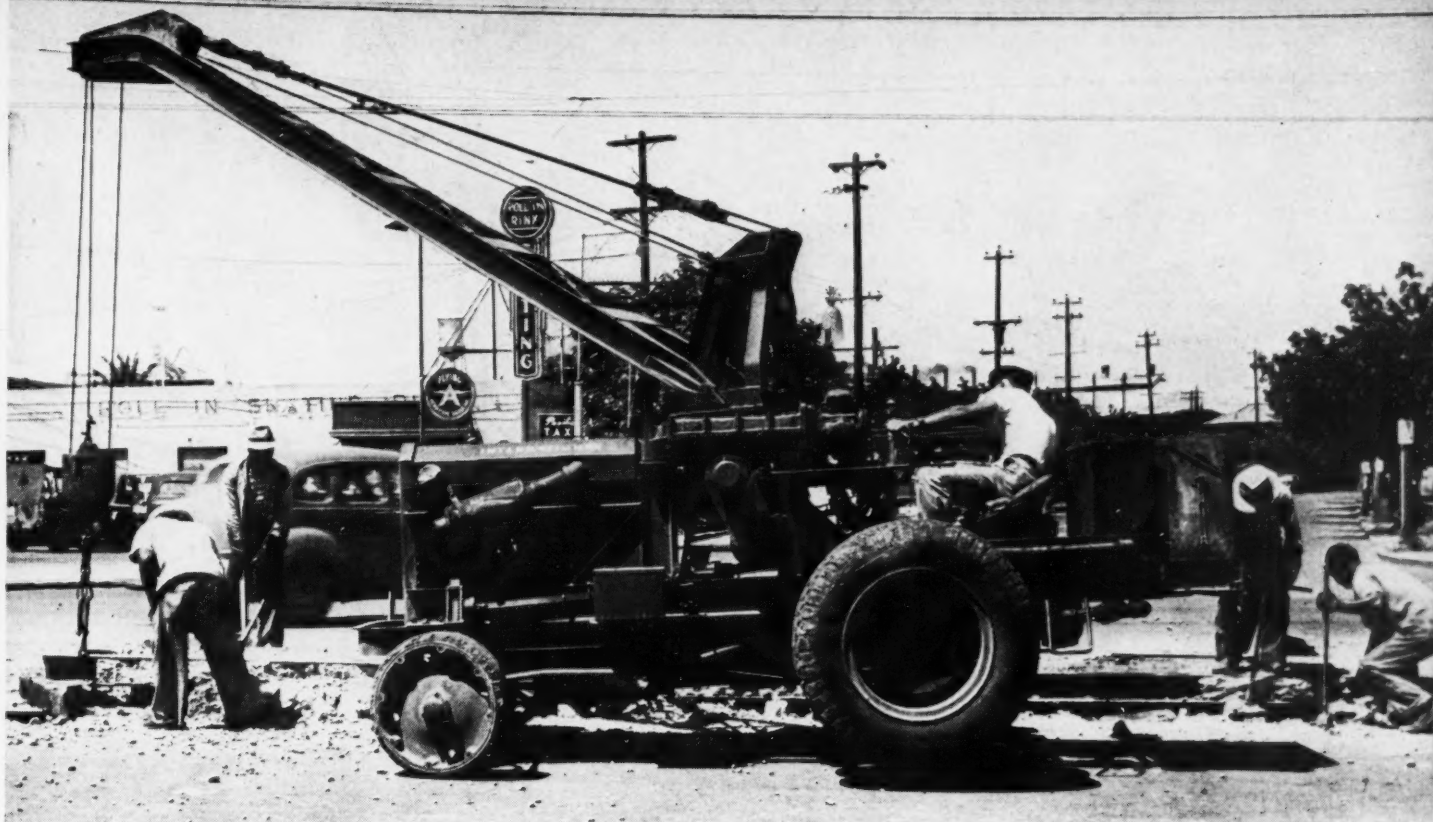
Rail-Puller Details

The machine is mounted on steel I-beam skids carrying a pair of welded steel A-frame guides between which two channels extend



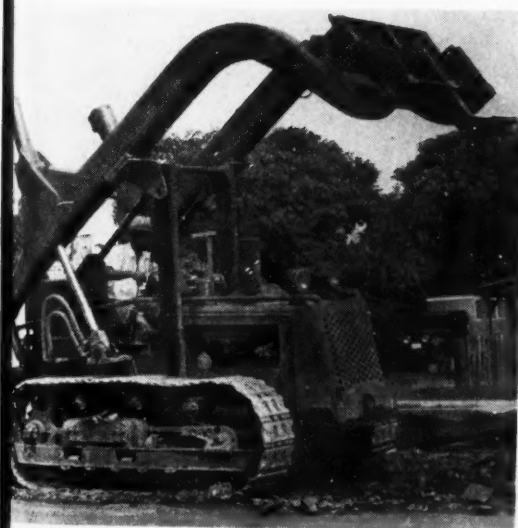
UP COMES RAIL, with ties attached, as extracting machine exerts powerful pull.





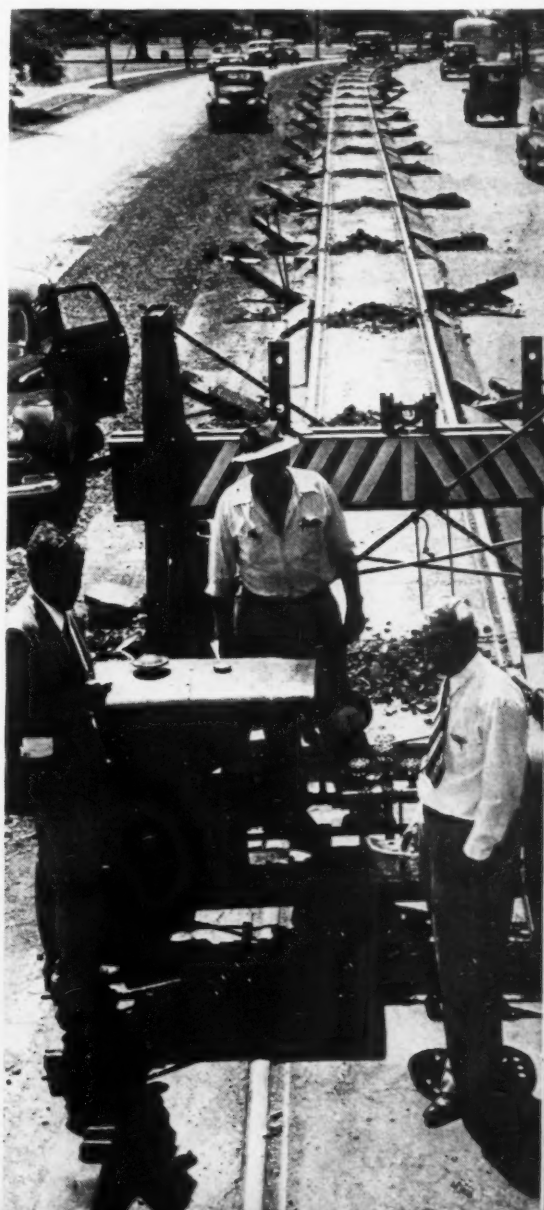
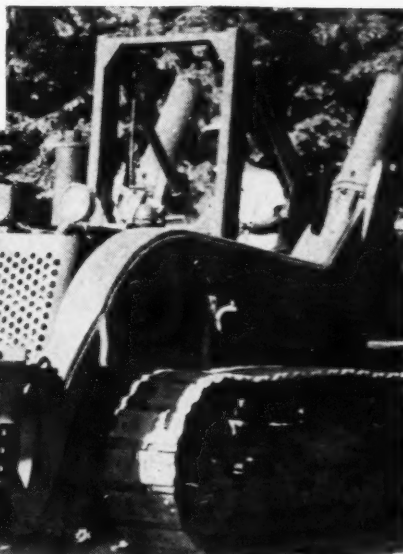
RAILS LOOSENED by extracting machine are picked up by tractor crane and loaded into truck for removal.

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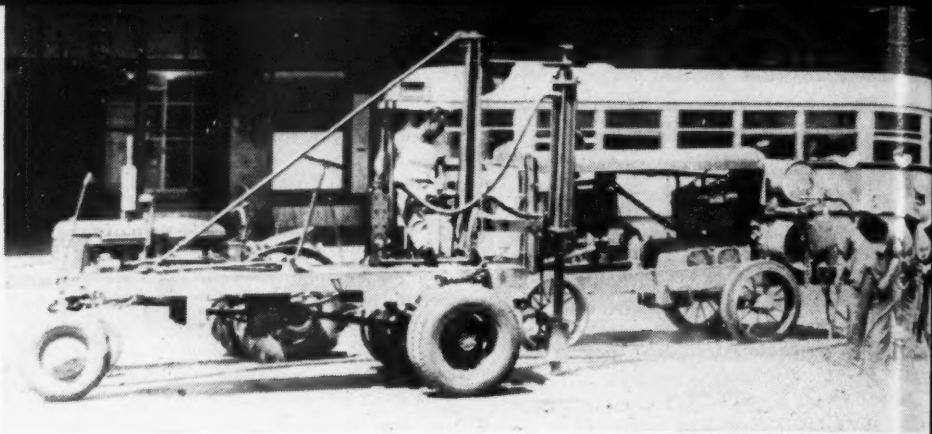
LOOSENED TRACK appears in wake of extracting machine about which are grouped, left to right: H. H. PHILLIPS, contractor; ROBERT REYNOLDS, foreman; and EDWARD DE HARNE, chief engineer, Honolulu Rapid Transit Co.

SPECIAL ROOTER TOOTH on tractor attachment is used to detach wood ties embedded in pavement.

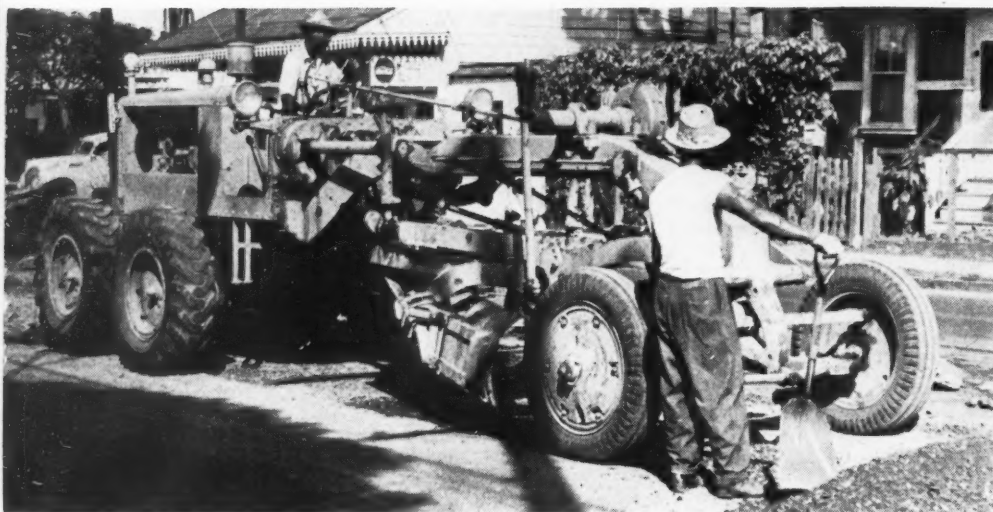




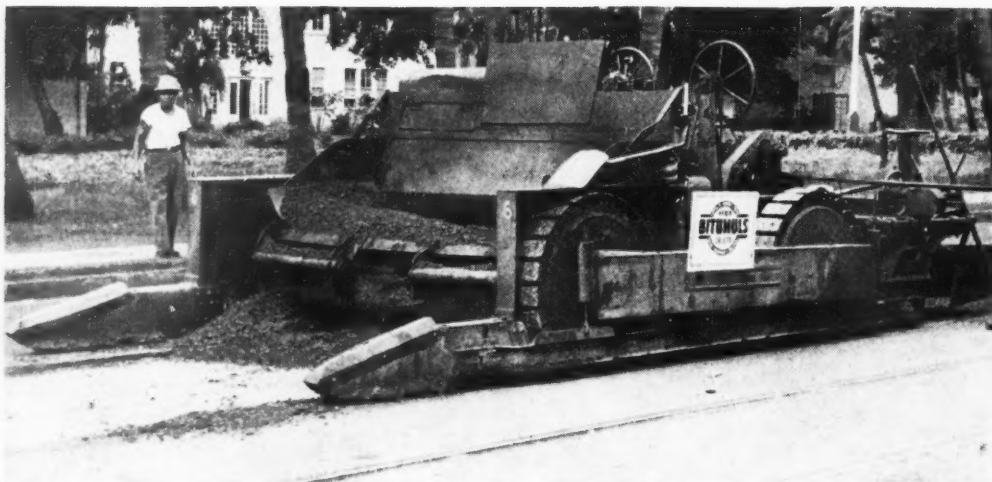
BROKEN PAVEMENT from track removal operation is loaded into truck by shovel attachment on tractor.



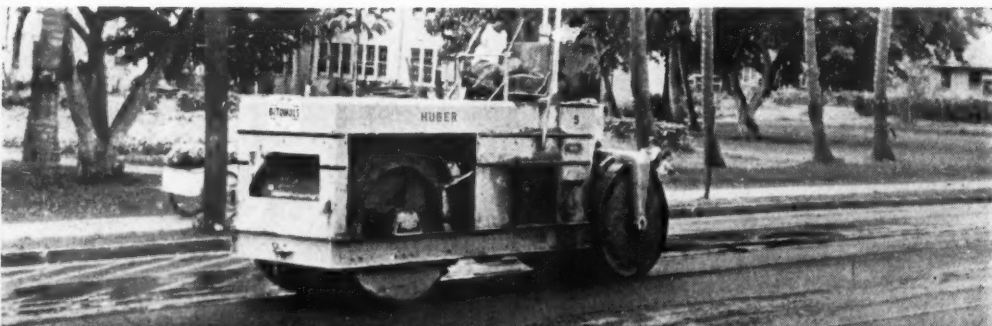
CONCRETE PAVEMENT is first broken by buster and pneumatic breakers in advance of rail-extracting machine.



PRIOR TO REPAVING area between car tracks, subgrade is leveled off by Caterpillar motor grader.



FOR REPAVING STRIP from which street-car tracks have been removed, bituminous mix is distributed by Jaeger paver.



horizontally, as illustrated herewith. Under the ends of the channels are welded steel plates to take the shove of two 60-ton hydraulic jacks each with a plunger travel of 16 in. Power for operating the jacks is provided by pumps designed originally for Navy use in testing hydraulic gear in planes. These pumps are driven by a pair of four-cylinder, air-cooled 17-hp. gasoline engines mounted on a frame across the front of the skids.

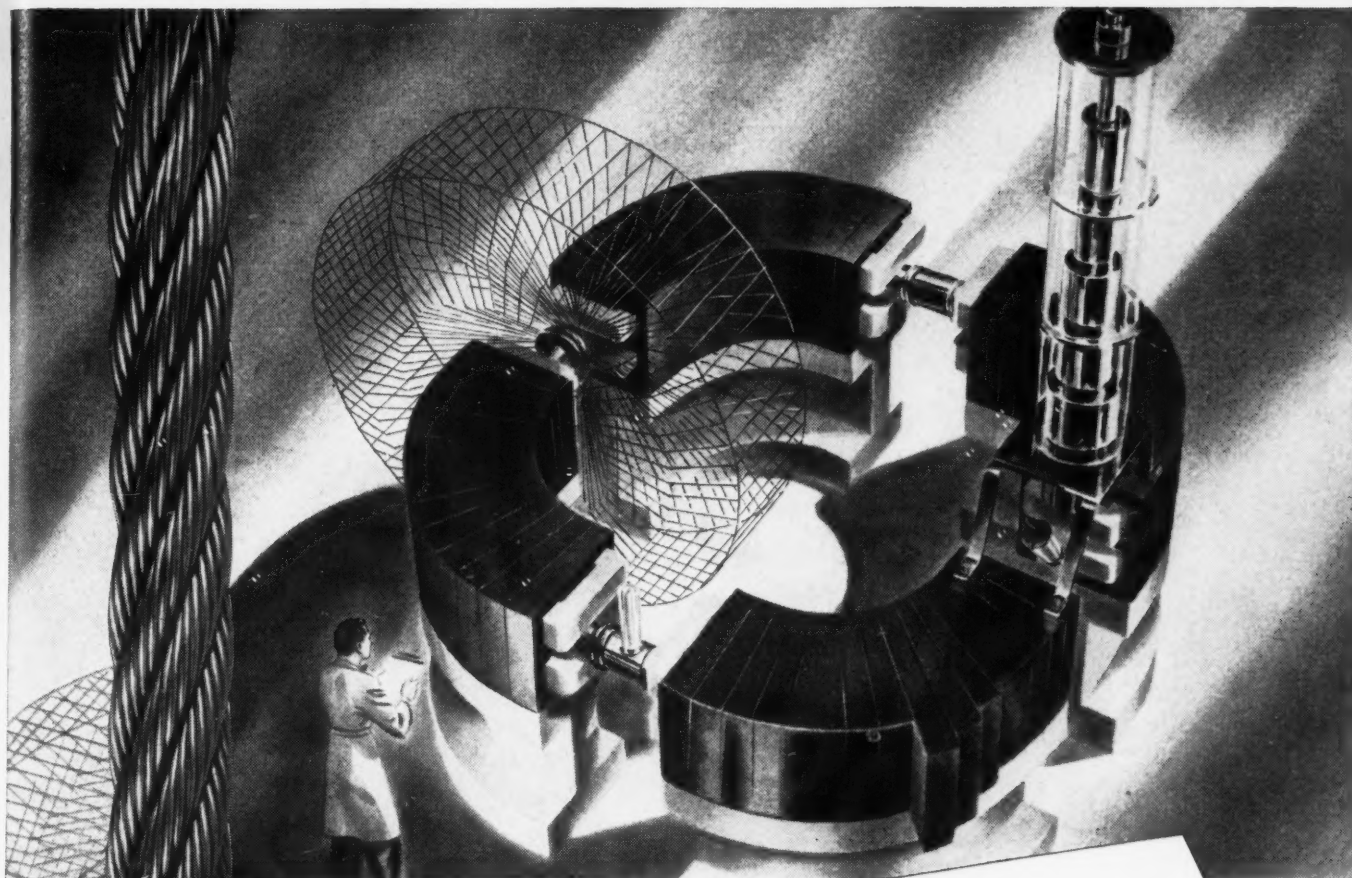
Extractor Crew

The extractor requires five men—An operator, two men on the rail clamps and two men putting ties under the rails once they had been lifted. In all, 4,500 tons of the 122-lb. rail were removed from beds of concrete, asphalt and stone block. Lifts were made about every 15 ft. in asphalt and every 10 or 15 ft. in concrete. In concrete, however, the outside surface, along the rails, had to be broken in advance by a concrete buster and pneumatic pavement breakers.

Ties and Rails Salvaged

The Honolulu Junk Co. bought the removed ties and rails, picking them up at the scene and paying \$12.50 a ton for the rails and 5c apiece for the ties. The completed job, including resurfacing of streets, cost about \$200,000.

←
COMPACTION of bituminous surfacing on line of removed car tracks is done with Huber tandem roller.



Precisionbilt LIKE A SYNCHROTRON*...
J&L WIRE ROPE
 PERMASET PREFORMED

Like a synchrotron,* J&L Precisionbilt Wire Rope is made to do its work and do it well. And, just as men of science look to the future J&L men are planning and working to produce an even better wire rope for you—wire rope that will give you increased service and reduce your maintenance costs. Specify J&L Precisionbilt Wire Rope for your equipment.

*A 300 million-volt synchrotron that will produce energy similar to that of cosmic ray particles is being constructed by scientists. It will go a step beyond atom-smashing to study sub-nuclear particles.

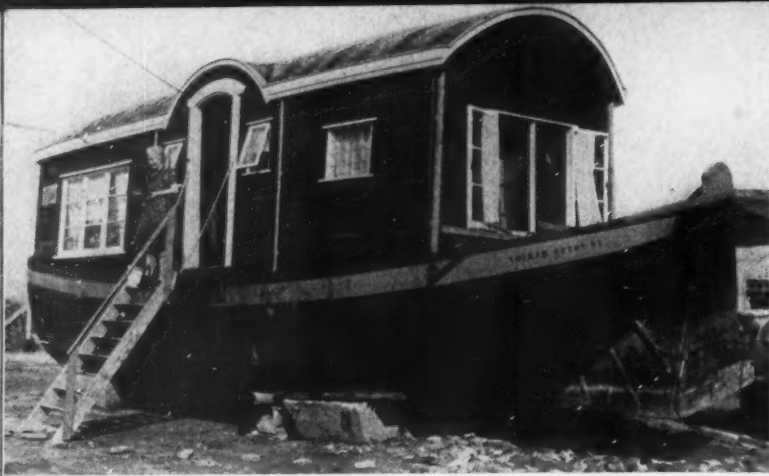
**J&L
STEEL**

JONES & LAUGHLIN STEEL CORPORATION

GILMORE WIRE ROPE DIVISION

PITTSBURGH 30, PENNSYLVANIA

J&L *Precisionbilt* PERMASET PRE-FORMED WIRE ROPE



HOLLAND'S HOUSING SHORTAGE is solved by skipper of lifeboat at Breskens, who uses remains of wrecked ship to build himself new home.

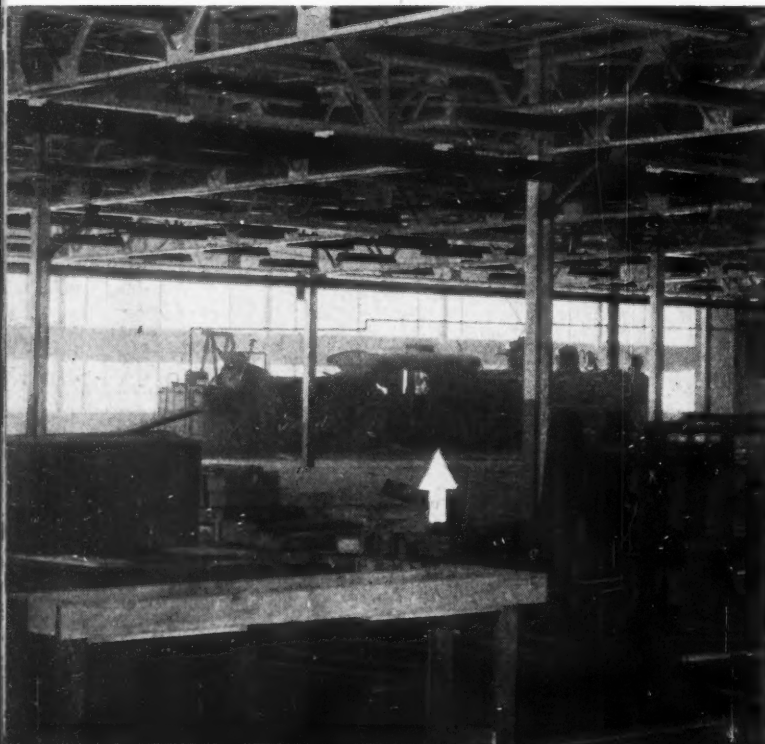
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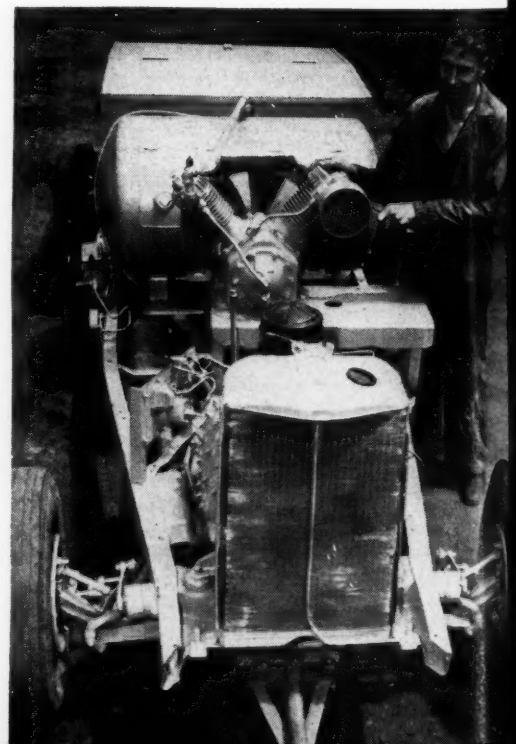
Page 110 — CONSTRUCTION METHODS — April 1947

VETERAN LOCOMOTIVE (below), sidetracked by modern diesels after years of switching service in Ford Motor Co. yards at Dearborn, Mich., comes to life again to furnish steam for heating Ford parts warehouse being built at Des Moines, Iowa, by Arthur H. Neumann & Bros., Inc., Des Moines contractors. Engine, dead-headed from Dearborn for heating building during construction, will heat completed structure until permanent heaters can be obtained.



NIAGARA OF EARTH falls into stockpile for banks of Coachella Canal of All-American Canal System in Arizona, California and Nevada. Caterpillar diesel D8 tractor with LeTourneau bulldozer is operated by J. F. Shea Co., Los Angeles contractor. More than 700,000 yd. of earth will be moved for this section.

→ **AIR RAID SIREN** is reconstructed to operate as portable compressor to power spray gun, sandblaster or hand drills by AL CALVALHO, Redondo Beach, Calif., city mechanic. Machine utilizes almost every part of siren except its scream. Salvage cost about \$500 and resulted in satisfactory substitute for scarce equipment worth about \$5,000.



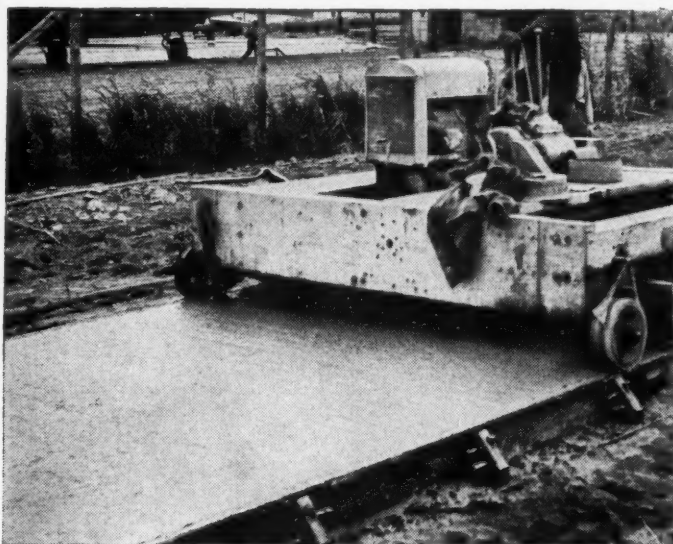
Simple as



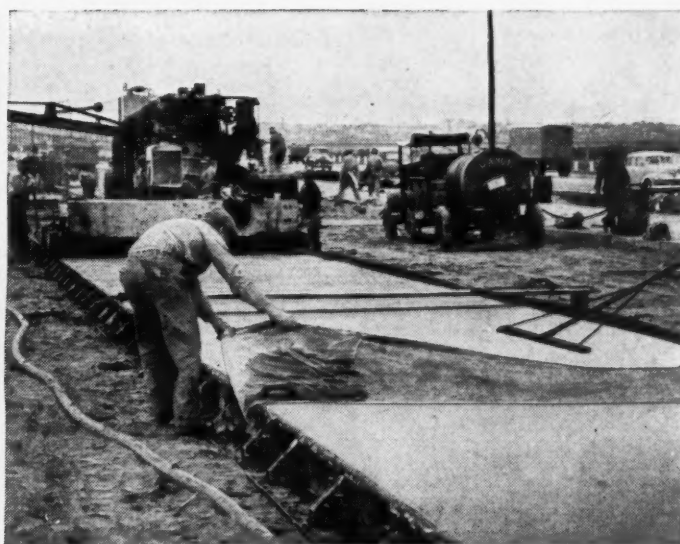
No added materials. No unusual changes in procedure. Making concrete that is highly scale-resistant and otherwise better at no extra cost is simply a matter of using Atlas Duraplastic air-entraining cement. For example, on Route 25, New Jersey:



REDUCED SEGREGATION: Duraplastic concrete is more cohesive ... flattens out without segregation ... coarse aggregate is well covered with mortar.



IMPROVED PLASTICITY of Duraplastic concrete is illustrated by appearance and over-all texture of surface after first screeding.



MINIMIZED BLEEDING is characteristic of Duraplastic concrete. Finishers may follow closely behind paver. This reduces long waits and overtime at end of day's run and permits early protection for curing.

It's as simple as A, B, C. Duraplastic cement makes better concrete at no extra cost. Send for further information. Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: Albany, Birmingham, Boston, Chicago, Cleveland, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

CM-D-48

AIR BUBBLES IN CONCRETE MAKE IT MORE DURABLE AND MORE PLASTIC

ATLAS DURAPLASTIC

TRADE MARK REG. U. A. C. CO.

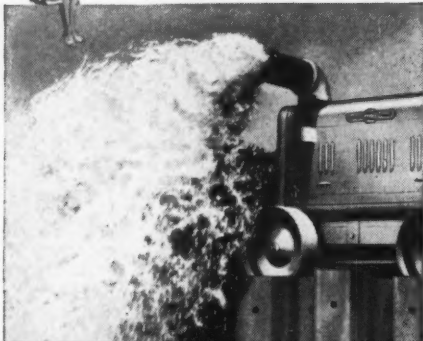
AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel—Sunday Evenings—ABC Network

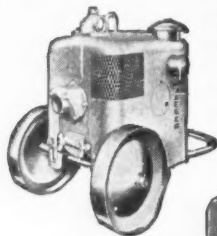


Here's how
to handle
water—



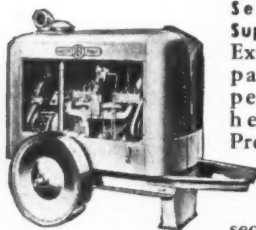
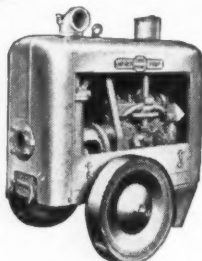
JAEGER
enclosed-type pumps
give you steady high
efficiency — longer life

To a better engineered, more amply powered, conservatively rated line of pumps, Jaeger has added all-weather protection of all heavy duty models of 2" to 10" size — for sustained efficiency of pump and engine, extra hours of smooth, dependable performance, plus easy accessibility at all times.



2" and 3" Heavy Duty: Most rugged small pumps built. Conservatively rated @ 10,000 and 20,000 g.p.h.

4" to 10" Portables: Compact, extra powerful units of 40,000 to 240,000 g.p.h. rating and exceptional air capacity.



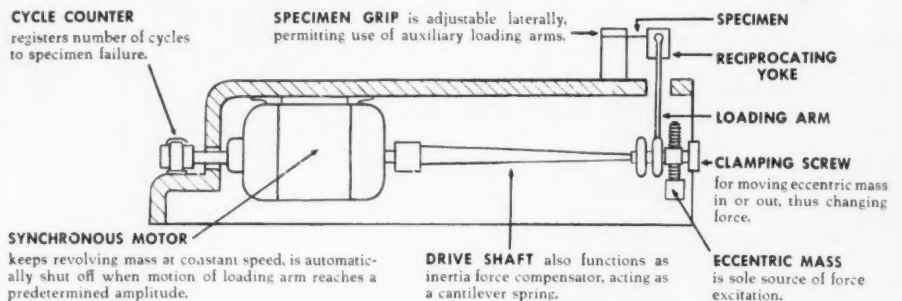
Self-Priming Super-Jet Pump: Extremely compact, yet outperforms old, heavy types. Pressures to 250 lbs.; 90 h.p. engine. Only 30 seconds to prime @ 20 ft.

Only Jaeger Offers All These Inherent priming action plus "jet" priming—doubly sure and fast . . . long-life "Lubri-Seal," accessible for inspection . . . self-cleaning shell design . . . replaceable liners or seal rings . . . Every pump tested and certified for performance.

Sold, Serviced in 128 Cities
THE JAEGER MACHINE CO.
Main Office, Factory, Columbus 16, Ohio
8 E. 48th St. 226 N. La Salle St.
NEW YORK 17, N. Y. CHICAGO 1, ILL.
235-38 Martin Bldg., BIRMINGHAM 1, ALA.

CONSTRUCTION EQUIPMENT NEWS

APRIL 1947 REVIEW of Construction Machinery and Materials



FATIGUE TESTING MACHINE — Sonntag Model SF-2 machine with the "constant-force" loading feature, affords flexure fatigue tests on sheet stock of any material—metal, plastic, wood—and requires no attention during test. Unique design eliminates need for any electronic equipment, complex linkage or special device to maintain constant force while specimen is under test. It uses revolving eccentric mass as means of loading specimen, avoiding cams or eccentric connecting rods which require readjustment during test as stiffness of specimen changes. With

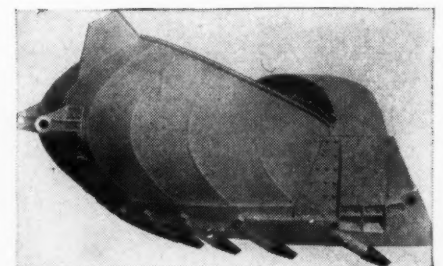
this constant force machine, load automatically remains constant regardless of changes in amount of deflection of specimen. Predetermined load is alternately applied to specimen and resulting deflection is incidental. Because of its comparatively small size, 15x12x32 in., machine can be placed in cabinet during test so that temperature and humidity can be controlled. It weighs 115 lb., has alternating force capacity of 20 lb. and speed of 1,800 cycles per minute with total travel of loading yoke of one inch per cycle.—**Baldwin Locomotive Works, Philadelphia 42, Pa.**

PERCUSSION BITS—New bit has chisel type design, hard wear-resistant Kennametal cutting edge and is driven by pneumatic percussion drilling machines. It will withstand



impact of air hammers using air pressures of 80 to 120 psi. They are being manufactured in sizes of 1½ and 1¾ in.—**Kennametal, Inc., Latrobe, Pa.**

LARGE SCRAPER — Largest of Crescent scraper buckets is new 15-cu. yd. Crescent Mammoth, now in use for stripping, levee construction, and similar work. Because of refinements in cutting lines and because



of its reduced weight-strength ratio, scraper can be operated by power unit scarcely larger than was required for former Crescent scrapers of 12-cu. yd. capacity.—**Sauerman Bros., Inc., 532 South Clinton St., Chicago 7, Ill.**

Adams Motor Graders
Your best buy—all ways



Built Stronger to Last Longer

★ You don't have to worry about those rough, tough, grading jobs—not when you have an Adams Motor Grader on the job.

Adams Motor Graders are built with a big, extra measure of strength and stamina, through and through. They've got everything it takes for handling punishing jobs—for punching shale out of hillsides—making heavy ditch and bank cuts—scarifying hard surface material—bucking through deep snow drifts, etc.

Yet, for all their great strength and stamina, Adams

Motor Graders are not bulky or overweight. Theirs is the hard, lean strength of a trained athlete—free of all excess weight. That's why Adams Graders are so economical to operate and maintain—why they can be depended on to deliver efficient, reliable service, year after long year.

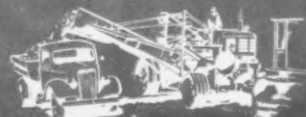
See your local Adams dealer. Let him show you why Adams Motor Graders are *Your Best Buy—All Ways*.

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, INDIANA

Adams

Motor Graders
Elevating Graders

Leaning Wheel Graders



"Finest, fastest, most economical product I ever used for pier forming work."

General Contractor*

Speaking of

Sonotube

THE LAMINATED FIBRE TUBING FOR FORMING PIER or COLUMN FORMS



SONOTUBES used on Heavy Platform Work

Ingenious contractors are adapting SONOTUBES to many uses through their ingenuity to save time, labor, lumber.

Lengths up to 24'—to be hand sawn to pier or column heights
SIX STANDARD DIAMETERS

INSIDE DIAMETER					
8"	9"	10"	11¼"	12"	13½"
50.26	64	SQUARE 78.54	INCHES 100	113.1	144

*Name on request

IMMEDIATE DELIVERY

Write for delivered prices

Smaller sizes available

SONOCO PRODUCTS COMPANY

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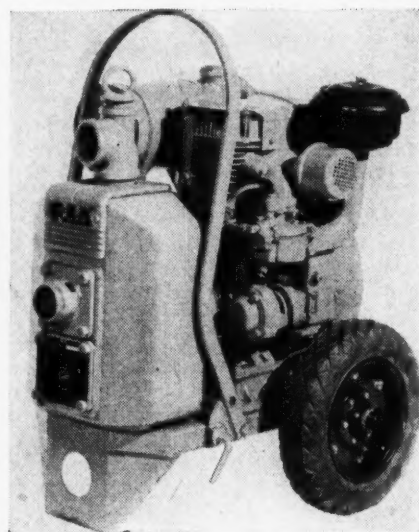
MYSTIC, CONN.

ROCKINGHAM, N. C.

GARWOOD, N. J.

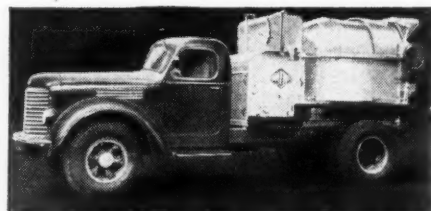
LOWELL, MASS.

STEEL PUMPS—New line of Rex press-formed self-priming centrifugal pumps combine attractive appearance with many features of construction that are unique in self-priming centrifugal pump design. Pump body is press formed of Armco ingot iron which is highly resistant



to corrosion. There is great saving in weight. Press-formed pump body resists cracking or shattering under heavy blows or in freezing weather. It can usually be repaired readily by welding. Pumping efficiency has been improved, due in part to smooth surface of pump and press-formed volute, resulting in smoother flow of water through pump. Fast prime is assured.—Chain Belt Co., 1600 West Bruce St., Milwaukee 4, Wis.

MOBILE TRUCK MIXER — Substantial improvements in design and construction of Smith-Mobile truck mixers give them larger drums with increased capacities and will include refinements such as: Selective dual water injection system; fully enclosed water pump valve and piping within motor housing; siphon-type



water tank; self-adjusting metal sealing door; improved three-point suspended transmission assembly; Timken bearing equipped front drum support; quickly accessible clutches; complete streamlined enclosure for greater safety. In spite of larger drums, thicker drum shell and blades, weight is lower per cubic foot of drum volume. Four sizes will be available: 2, 3, 4½ and 5½-yd. truck mixer; 3, 4¼, 6½ and 7¾-yd. agitators. — The T. L. Smith Co., Milwaukee, Wis.

New

INTERNATIONAL Trucks FOR EVERY CONSTRUCTION JOB



**40th
ANNIVERSARY OF
INTERNATIONAL TRUCKS**
1907-1947—Forty years of
International Truck Service to
Industry, Commerce, Agriculture

INTERNATIONAL 197-inch wheelbase Model KB-8-F chassis is a powerful six-wheeler having outstanding qualities of stamina, performance and long life. The KB-8-F is powered by the Red Diamond 361-cubic inch displacement engine which develops 126 maximum horsepower at 3,000 r.p.m. and maximum torque of 282 lb. ft. at 1,200 r.p.m. Either direct-in-fifth or overdrive-in-fifth transmissions are available. The KB-8-F is available in four wheelbases, 161, 179, 197 and 215 inches, and a gross vehicle weight rating of from 27,000 to 35,100 pounds.

THERE ARE 15 basic models in International's brilliant new KB Line of Trucks. These 15 basic models *specialize* into more than 1,000 different transport units. That means that there is a *specialized* International Truck for every construction job, from the smallest to the largest.

And how the new Model KB Internationals do their jobs! With what economy, long, trouble-free service and ease of operation! They're the finest values in 40 years of International Truck history, and International Truck values are so outstanding that for the last 16 years more heavy-duty Internationals have served American commerce and in-

dustry than any other make.

New KB Internationals display brilliant styling that sets new standards for the truck industry. Throughout the 15 basic models numerous features and improvements have been incorporated, all contributing to even greater truck performance.

See your International branch or dealer now about KB International Models and learn how these brilliant new Internationals can serve you.

Motor Truck Division

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue

Chicago 1, Illinois



Tune in James Melton on "Harvest of Stars" every Sunday!
NBC Network. See newspaper for time and station.

INTERNATIONAL  **TRUCKS**

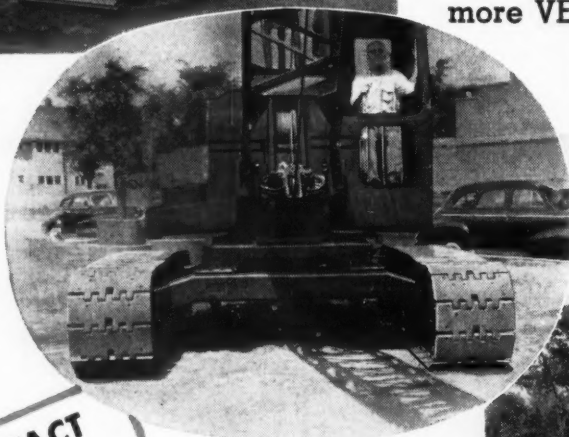


UNIT *"Webbed Feet"* FOR SOFT, LOAMY SOIL!

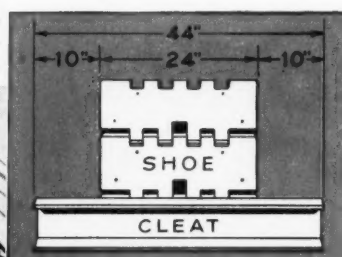


Every UNIT Crane or Shovel can be equipped with broad, heavy duty cleats that practically double the bearing surface of the machine and make it possible to travel over soft, loamy soil. Ideal for use in swamplands... sugar plantations . . . in fact, wherever the soil is too soft or marshy for the ordinary excavator. "Webbed Feet" is an exclusive UNIT feature, broadening the scope of your UNIT Excavator. It enables you to go places formerly impenetrable and makes your UNIT more **VERSATILE**, more **PROFITABLE**.

Cleats are bolted to the crawler shoes and are quickly detachable. A special arched axle adds stability and provides additional clearance between the machine and the ground.



Note that cleats practically double the bearing surface of machine.



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FACTORY
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For Price
and Delivery



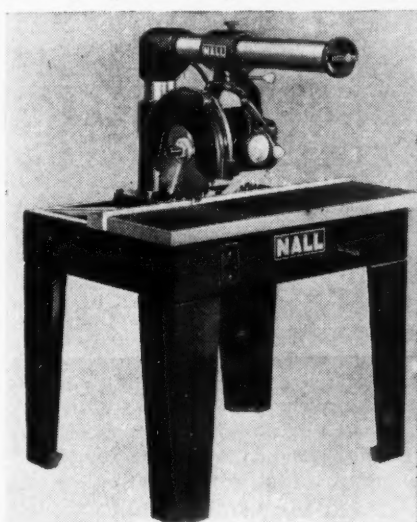
UNIT CRANE & SHOVEL CORP. 6305 WEST BURNHAM STREET
MILWAUKEE 14, WIS., U. S. A.

PRINTER-DEVELOPER — New and exclusive features of design facilitate print production in new Bruning Model 91 BW volumatic printer-developer. Requiring only one operator, Volumatic is intended for large-volume production of cut sheets and accommodates roll stock up to 42 in. wide. It prints and develops all



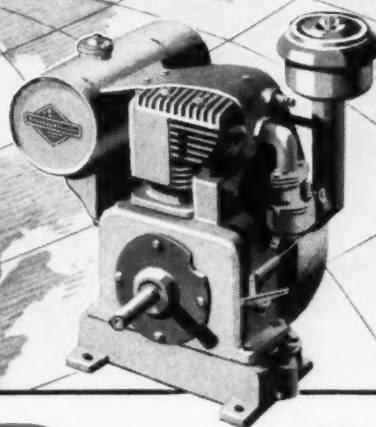
Bruning BW mediums, including light, regular or cardweight BW paper prints. Prints are produced in volume at speeds up to 30 ft. per min. Machine has extra-large feed board, providing more than 13 sq. ft. of space. Sensitized medium and original copy are drawn in by new and exclusive vacuum feed and are held in close contact with each other. Few controls necessary are simple in operation and are within easy reach of operator at all times. —Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41, Ill.

RADIAL WOODWORKER — Nall radial woodworker is dependable, high-production, radial arm saw with great accuracy. It will handle any sawing operation quickly. Changes



from one operation to another can be made in less than one minute. Features are: Simple operation; time saver; lightweight, rugged construction frictionless carriage; new indexing and locking mechanisms; dust-sealed parts.—Nall Equipment Engineering Co., St. Charles, Ill.

BRIGGS & STRATTON ENGINES



Preferred Power
the world over

**FOR INDUSTRIAL, CONSTRUCTION,
RAILROAD AND FARM EQUIPMENT**

Year after year, during the 27 years of continuous production of air-cooled engines, Briggs & Stratton has constantly been first in developing and adopting the most advanced worth while engineering and production improvements. Through constant factory and on-the-job field study, by highly skilled engineers, Briggs & Stratton has always kept out in front — years ahead — in meeting the power requirements of equipment and appliance builders.

This experience is assurance of all that is best in gasoline power performance, as proven by the record established by more than 2¾ million Briggs & Stratton single cylinder, 4-cycle air-cooled gasoline engines—the record which has established them as "preferred power" by users, dealers and manufacturers the world over.

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wisconsin

Air-Cooled Power



MEMO
TO ALL CONSTRUCTION SUPTS.:—

*Have we been taking "BUCKETS"
too much for granted?
What about HAISS
high power ratio
7:1
J.J.B.*



For Catalogs, Prices, Deliveries
Write or Wire

HAISS

HI-POWER BUCKETS

GEORGE HAISS MANUFACTURING CO., 139th STREET & CANAL PLACE, NEW YORK 51, N.Y.

Guard against work stoppages with TOWER PNEUMATIC HOSE

Working properties expertly built into Republic's Tower Pneumatic Hose guard against work stoppages and delays due to trouble or failures in hose lines. Examine the accompanying illustration of Tower's construction. The advanced qualities of materials and reinforcing components hold the answer to the leading preference among contractors for this extremely rugged but lightweight hose. Ask your Republic Distributor for Tower, make your own comparisons on the basis of actual performance.

(1) Seamless, oil and heat-resistant, extruded rubber tube. (2) High tensile, twisted cords braided into seamless, tubular plies. (3) Rubber insulating layers assuring firm ply adhesion. (4) Special abrasion, cut, weather and sun-resisting rubber cover, extruded without seam.

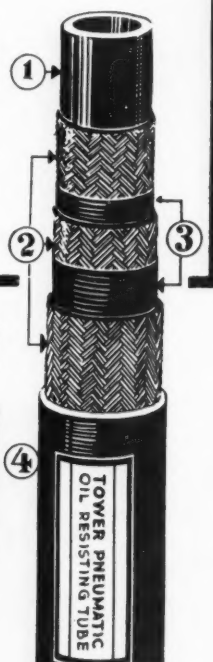
REPUBLIC RUBBER

DIVISION
LEE RUBBER & TIRE CORPORATION
YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS
YOUNGSTOWN, OHIO



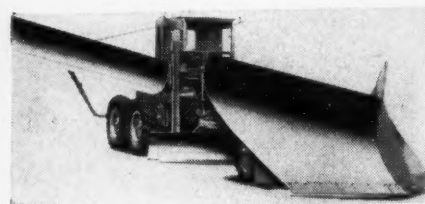
LEE RUBBER TIRES AND TUBES
CONSUMERS, PA.



MORE SERVICE FROM RUBBER FOR INDUSTRY

SNOW-REMOVAL ATTACHMENTS

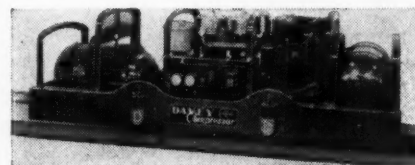
—New and improved snow removal attachments are now available for Caterpillar diesel No. 212 motor grader as well as for the larger sizes of Caterpillar motor graders. These attachments are V-type snow plow, mast-type snow wing and reversible one-way plow and bulldozer. Snow



wing and bulldozer are new; marked improvement in operation of mast-type snow wing has been effected in all sizes with modifications which insure smooth parallel lift with both ends of blade elevated simultaneously. Mast-type snow wing for smallest grader has 10-ft blade, 27 in. high with weight of 1,500 lb. Reversible one-way plow and bulldozer is 8 ft., 6 in. wide and 28 in. high, weighs 1,740 lb. and has lift of 12 in.—Caterpillar Tractor Co., Peoria, Ill.

RAILCAR COMPRESSOR

—Railcar compressor for mine and tunnel work is mounted on welded structural steel chassis. Unit is available in 60, 105, 160, 210 and 315-cfm. capacities. Two-stage compressor is directly connected to gasoline engine, diesel engine or electric motor. Gas and diesel machines include throttle control and unloader which automatically regulate pressure and acceleration. Electrically driven



units have automatic controls and explosion-proof electrical equipment. Cars are manufactured for either standard or narrow gage track. Springs and wheels are standard mine car type. Axle assemblies are ball-bearing equipped and sealed against dust and dirt. Standard equipment includes heavy metal canopy with open sides and doors, tool box and kit. In addition 60 and 105-cfm. machines can be furnished in single-stage construction. Self-propelled rail cars can be furnished on special order.—Davey Compressor Co., Kent, Ohio.

SMALL, SELF-LOADING UNIT

—New small Tournapull is starting in production. Capacity of this self-loading unit is 1½ yd. struck.—R. G. LeTourneau, Inc., Peoria, Ill.

GREASE THAT CLINGS TO BEARINGS

Like a Magnet

ALEMITE VISCOUS "H" LUBRICANT

In the construction industry, bearings take a beating. Operating conditions demand an extremely tough lubricant—and Alemite Viscous "H" Lubricant is the answer.

- ★ It is stringy, tacky, highly adhesive.
- ★ Actually crawls along a bearing surface, yet does not squeeze out under severe pounding.
- ★ It resists high pressures without thinning out.
- ★ Water repellent, non-corrosive, does not gum or jell in a bearing.
- ★ It seals bearings against dirt and moisture.

★ It does a thorough, safe lubricating job at high or low temperatures.

★ Handles easily in gun loaders and lubricant transferring equipment... is readily applied with hand-guns or power lubricating equipment.

★ Its melting point is 200° F.

★ Ideal for track roller and idler bearings, sleeve-type bearings on truck chassis, loaders, scrapers, shovels and dump trucks.

ALEMITE VISCOUS LUBRICANT has the same uses and characteristics as Alemite Viscous "H", but has a lighter density. Its melting point is 190° F.

THERE'S A SPECIAL ALEMITE LUBRICANT FOR EVERY NEED OF THE CONSTRUCTION INDUSTRY



For Power Shovels, Drag Lines, Trenchers, Graders, Scrapers, Mixers, Pavers, Finishers, Road Rollers, etc.

For Bearings (Plain or Anti-Friction)—Pressure Lubricated.
ALEMITE No. 33 or No. 38
In normal operating temperatures

For Enclosed Gears
ALEMITE E. P. 140
in summer temperatures.

For Open Gears
ALEMITE GEAR COATING "B"
in summer temperatures.

For Wire Ropes and Cables
ALEMITE No. 5 or GEAR COATING "A" or "B"

For Bearings (Plain or Anti-Friction)—Pressure Lubricated.
ALEMITE SUB-ZERO (No. 30)
In winter temperatures

For Enclosed Gears
ALEMITE E. P. 90
in winter temperatures.

For Open Gears
ALEMITE GEAR COATING "A"
in winter temperatures.

For Conveyors
Belt, Bucket, Flight, Apron, Platform, Screw, Monorail, Chain, Gravity. For Bearings (Plain or Anti-Friction)—Pressure Lubricated.

ALEMITE SUB-ZERO (No. 30)
in operating temperatures from 40° below to 32° F.

ALEMITE SOLIDIFIED OIL (No. 32) or LIGHT (No. 33)
at operating temperatures up to 100° F.

ALEMITE No. 38
at operating temperatures up to 300° F.

For complete details on Alemite Lubricants consult your Alemite Distributor or write Alemite, 1840 Diversey Parkway, Chicago 14, Ill.

FREE! New Booklet, "Correct Lubrication in the Construction Industry." Filled with practical, machine-saving information. Send for your copy, today.



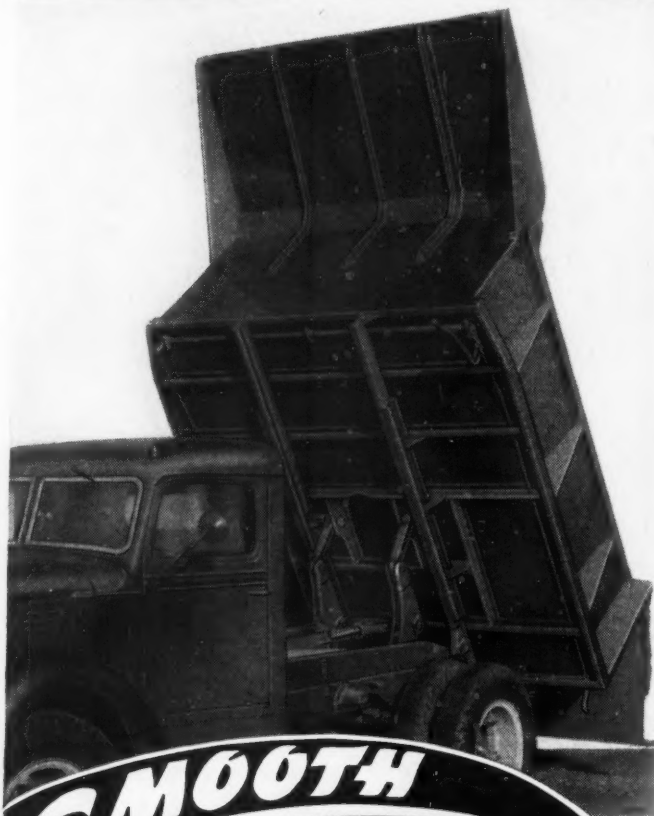
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Alemite ALONE Combines all 3 in Lubrication

1. EQUIPMENT 2. PROCEDURES 3. LUBRICANTS

USED THE WORLD OVER



SMOOTH
IS THE
WORD FOR
PERFECTION
BODY *and* HOIST
ACTION



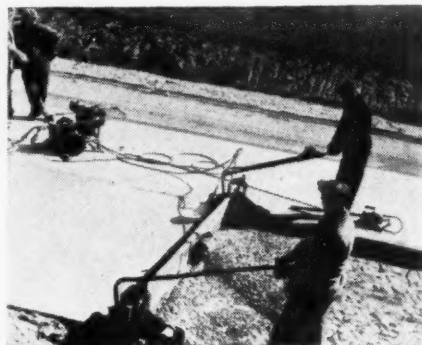
Write for name of nearest Perfection Distributor
THE PERFECTION STEEL BODY COMPANY
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PERFECTION
STAKE and DUMP BODIES
HYDRAULIC HOISTS



FOR ANY TRUCK
STANDARD or SPECIAL UNITS
IN ALL SIZES • FOR ANY USE

HAND SCREED—New Model SC 200A Jackson vibratory hand screed is built to satisfy demand for vibratory hand screed that can be used on a variety of concrete slab surfacing operations such as floors, bridge decks, sidewalks, ramps and odd or short sections of municipal and other pavement where it would not be practicable to use large mechanical finishing machine. Since screed member is of wood, weight is held to minimum. Wood also



serves to transmit vibratory energy. Screed acts as mechanical strikeoff and vibrations imparted by vibratory motor through screed members and into concrete solidly compact concrete and bring to surface high-grade finishing mortar. Important feature is that screed has tendency to propel itself forward, greatly reducing pulling effort required. Depending upon width, screed is operated by either two men or single individual. When used in conjunction with Jackson portable power unit, wide range of vibratory frequencies are available. — **Electric Tamper & Equipment Co., Ludington, Mich.**

HORIZONTAL EARTH BORER—New horizontal earth-boring tool, light enough to be operated by one man, is expressly developed for running in pipe leads. It is reported to be consistently straight-boring for underground distances up to 50 ft.



Power is provided by 3.2-hp. motor operated by 90-psi. air. Pilot bit hole of 2-in. dia. can be opened by reaming to 3½ and 4½ in. For added handling ease, boring bar sections are only 2 ft. in length and weigh but 5 lb. each.—**Hydrauger Corp., Ltd., 116 New Montgomery St., San Francisco, Cal.**

Advertisement

Services Offered

BUILDING MAINTENANCE. Blackhawk Porto-Power adapts to any span to lift sagged buildings, straighten building posts, etc., with tons of controlled hydraulic power.

CLAMPING. Standard clamp attachment adapts Porto-Power ram for clamping parts for riveting or welding.

CLOSE-QUARTER WORK. 2-ton Bantam Porto-Power provides moderate power for compact quarters. 4-ton midget ram works with low of 15". Even the 50-ton ram needs working area of only 5' dia.

CONSTRUCTION WORK. Versatile hydraulic Porto-Power can be adapted to numerous operations such as forcing grooved wood flooring and sections into place, riveting culverts, straightening buckets, lifting equipment for loading, etc.

DIES SEPARATED. Porto-Power Rams serve in tool rooms for smooth, easy separation of dies.

ELECTRICAL SERVICE. Rigid pipe and conduit bent with Porto-Power Pipe Bender Power Unit. Also adaptable for lifting transformers and machinery, pulling drive pulleys on motors, and other work allied to pipe bending.

EQUIPMENT MAINTENANCE. Adaptable for push, pull, bend, spread, press, clamp, and straightening operations—Porto-Power serves all phases of equipment maintenance.

MACHINERY ALIGNMENT. One-man-operated Porto-Power handles heavy machinery easily and with safety because of remote control.

MACHINERY MOVED. Porto-Power toe-lift combination lifts heavy machinery without crowsbars or extra manpower. Only a two-man job.

MAINTENANCE SERVICE. Shafts straightened overhead; frames on material handling machines straightened without dismantling; also spread heavy malleable conveyor links for replacement with Porto-Power.

MEASURING. Porto-Power equipped with gauge tests load bearing qualities of soil, sinks pilings to hold pre-determined loads, presses with cautionary force, weighs huge tonnages and tests materials.

MONORAIL BENT. Simple Porto-Power pull-chain combination bends monorail and angle iron.

PIN REMOVAL. Pins, bushings, bolts, or shafts removed and inserted with hydraulic Porto-Power.

PORTABLE HYDRAULIC POWER. All-directional, threaded rams of 2, 4, 7, 10, 20 and 50-ton capacities, with attachments for maintenance and production work. Only Porto-Power offers this service.

PRESS WORK. Porto-Power—adaptable for use in shop-built or special presses. Can be used for many types of press work including pressing of certain plastics.

PULLING DRIVE PULLEYS, GEARS AND WHEELS. Porto-Power handles pulling operations with smooth, safe hydraulic power.

PUNCHING. Porto-Power can easily be adapted to sheet metal punching and other fabrication work.

SHORING. All-directional Porto-Power provides smooth steady pressure for safe shoring operations.

STRAIGHTEN CASTINGS distorted by heat treatment with powerful hydraulic Porto-Power.

TESTING. Gauge-equipped Porto-Power for use in laboratory or on construction or production jobs in testing welds and checking breaking point of materials, etc.

WEIGHING VAST TONNAGES. Hydraulic Porto-Power with gauge adaptable for checking weights of large, cumbersome structural members.

Investment Property

Only \$157.50 buys the versatile new S-45 Postwar Porto-Power, complete with stand, press, 10-ton hydraulic unit, and attachments. Every plant needs this equipment for general service. An ideal tool for low cost production and maintenance work.

SAVE MONEY ON PIPE INSTALLATIONS. Porto-Power bends pipe and conduit up to 4" diameter. Eliminates extra cutting and threading and use of factory-formed ells.

PAYS FOR ITSELF, FAST. A profitable, money-making buy for every plant. Porto-Power serves in every department—handles 1001 tough jobs. The most versatile tool of its kind.

COST SAVER. Porto-Power has an unmatched cost-cutting record. Fast hydraulic power replaces slow, dangerous mechanical methods.

SIX HYDRAULIC RAMS. 2-ton Bantam, 4-ton Midget Ram, 7-ton Short Ram and the 10, 20 and 50-ton standard rams provide a complete range of hydraulic units adapting your Porto-Power to myriads of jobs.

Birth Announcements

R-263. The 4-ton "Thimble-size" Midget Ram is back to increase profits and cut costs for Porto-Power owners. A specialist for tight squeeze work because this powerful little remotely-controlled ram exerts force where other devices cannot be inserted.

TUBULAR STAND. Added portability is given to your Porto-Power by the new, handy wheeled stand. Strong and practical. Its two large trays bring the complete Porto-Power and other tools right to the job. Has four large wheels for easy maneuverability. Press for 10-ton ram is mounted on the stand. Saves time lost in walking back and forth to bring maintenance equipment on and off job.

Death Notices

HEAT. No need for heating and destroying the temper of metals on maintenance work. Porto-Power provides ample strength to bend and straighten heavy beams, conduit, etc., cold.

MECHANICAL DEVICES. Need for a variety of dangerous, back-breaking, mechanical jacks and devices is eliminated by Porto-Power. Attachments adapt Porto-Power to every type of lifting and leverage work.

SLEDGING. Porto-Power's smooth hydraulic power eliminates dangerous, damaging sledging and hammering.

Business Opportunities

CONSTRUCTION. Portable, safe, remotely-controlled Porto-Power provides on-the-spot hydraulic power for lifting, moving, clamping, and other operations. Helps meet deadlines and hold down costs.

BOOST THE EFFICIENCY OF YOUR MAINTENANCE DEPARTMENT. A work shop on wheels. Porto-Power with its wide range of attachments adapts itself to 1001 different jobs. Increases your range of work and cost-cutting opportunities.

EQUIPMENT MAINTENANCE IN THE FIELD. Service Managers recommend Porto-Power to service shops for profitable, fast work on tractors, motor vehicles, road machinery and other equipment.

EMERGENCY SERVICE. Porto-Power is on-the-spot repair equipment for emergencies. Easily transported and capable of applying tons of power, with the versatility of human hands.

PRODUCTION. Many operations can be speeded up by the application of low-cost Porto-Power. Its ample, smooth hydraulic power can be adapted for quick, accurate activating power for machines. Also for press operations.

Equipment for Sale

BENCH PRESS. A sturdy, 4-post Porto-Power press, designed for easy mounting on work benches. Used with the 10-ton Porto-Power ram, this makes an ideal press for dozens of production and maintenance jobs.

COMING SOON. An array of sensational new Blackhawk Porto-Power developments are on their way. Not in the blueprint stage, but ready for production. Adaptable to your present Porto-Power equipment, this new equipment will increase the versatility of your

Porto-Power and help you earn even greater profits.

COMPLETE KITS OF PORTO-POWER EQUIPMENT. You can select hydraulic units that fit your job requirements. The S-79 kit brings you 20-ton equipment; S-31 and S-45 bring you 10-ton assortments, etc. See your Blackhawk Industrial Supply Distributor for the complete story on this big line of hydraulic service tools.

Free Offers

ASK FOR DEMONSTRATION. See for yourself how Porto-Power adapts itself to every type of push, pull, bend, press, clamp, spread, and straightening operation. Learn how it works in many departments of your plant.

CALL YOUR DISTRIBUTOR. Your Blackhawk Industrial Supply Distributor is prepared to give you full information on Porto-Power. Be sure you are on his list so you can get early delivery of your Porto-Power.

WRITE for new Blackhawk Postwar Porto-Power Catalog containing full information on the many new developments. It's a complete guide to Porto-Power profit opportunities. Blackhawk will also send you new catalogs on Hydraulic Jacks and Wrenches.

Yes! Porto-Power^{*}

IS Classified . . .



Porto-Power is classified as a complete system of portable equipment for applying hydraulic power to push, pull, clamp, spread, bend, lift, and press jobs. It replaces costly, dangerous, damaging mechanical devices and back-breaking methods which were formerly necessary. Cuts maintenance, production, and construction costs. No other equipment can match Porto-Power's versatility. Plan now to become Porto-Power equipped!

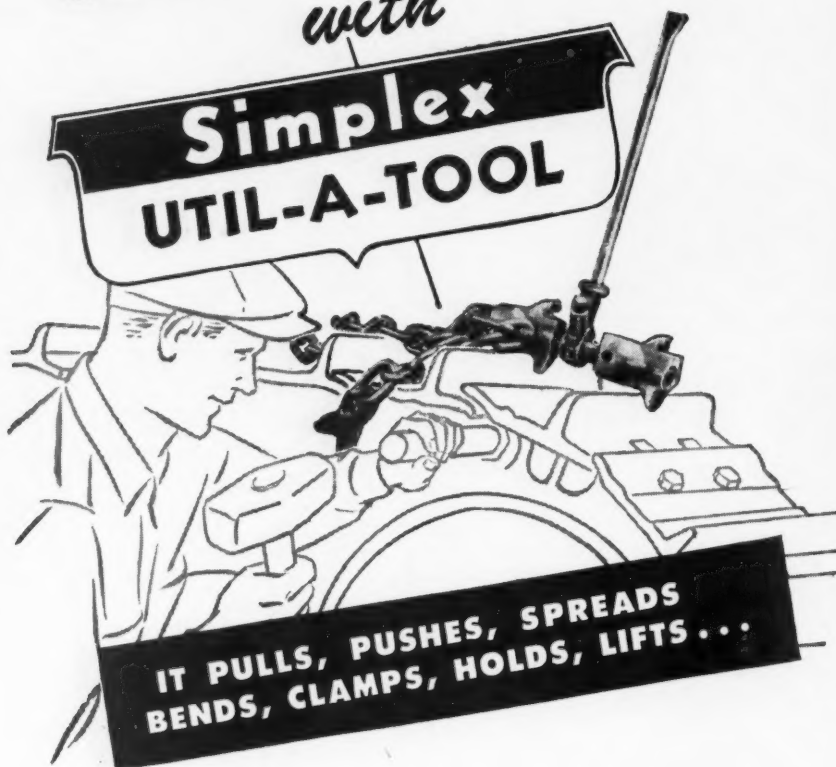
**There is only one Porto-Power . . . it is made by Blackhawk, Trade Mark Registered.*

A Product of BLACKHAWK MFG. COMPANY
DEPT. P2347, Milwaukee 1, Wisconsin

BLACKHAWK

save time and work
on countless jobs
with

**Simplex
UTIL-A-TOOL**

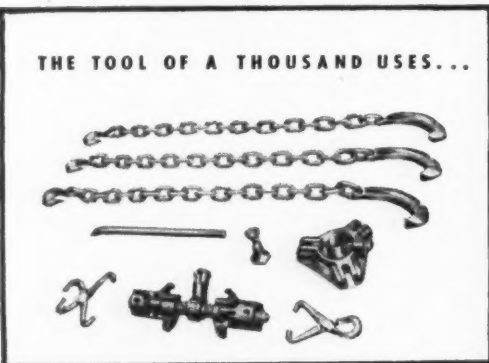


**IT PULLS, PUSHES, SPREADS
BENDS, CLAMPS, HOLDS, LIFTS...**

When you get a Util-A-Tool set on the job, you'll be amazed at the time and labor it saves... at the ease with which it enables you to handle otherwise difficult operations... at its versatility!

For example, a Util-A-Tool is ideal for clamping and holding parts for welding and assembly... moving machinery, straightening frames and structural members. It can be used for pulling in bulged car and truck sides, car doors and other frozen or wedged members; also for pulling machinery or engines on skids, etc. It is a handy beam clamp for chain hoists with the use of sky hooks. It really pulls pinions, bushings, wheels and gears... *is the fastest universal wheel puller yet devised!*

THE TOOL OF A THOUSAND USES...

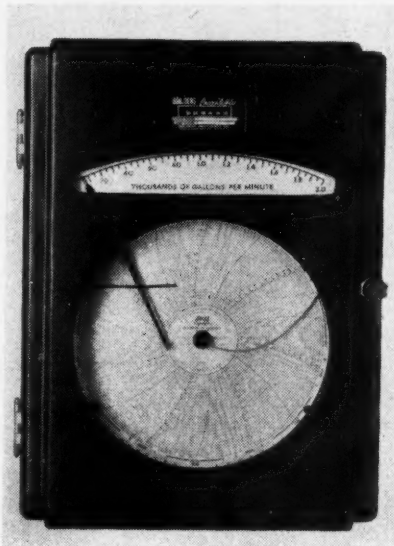


Util-A-Tool sets are available for immediate delivery through distributors everywhere... at prices that can easily make this "Tool of a Thousand Uses" pay for itself through time and labor savings on a single job. Write for Bulletin P & P-46.

Simplex
LEVER • SCREW • HYDRAULIC
Jacks

TEMPLETON, KENLY & CO.
1008 South Central Ave., Chicago 44, Ill.

TOTALIZER INDICATOR RECORDER — Electrically operated secondary instrument for use with Propelloflo, Shuntflo or other mechanical flow meter or as recording-indicating-totalizing tachometer has been announced. Instrument is actuated by impulses over two-wire cir-



cuit from transmitter which is mechanically driven by primary meter. No power supply is necessary for primary instrument. Transmitter consists of switch which makes contact for predetermined number of gallons as they pass through meter. New instrument provides readings of total flow, rate of flow and chart record of flow over any distance from few feet to many miles from primary instrument. It is mounted in rectangular case. — **Builders-Providence, Inc., Providence, R. I.**

SMALL TRUCK—New 1½-ton truck embodies basic automotive principles. It features trussed tubular steel frame; low-level floors; front-wheel drive; more cubic feet of loading space in shorter over-all length truck; lighter weight; detachable, inter-changeable power train; torsion bar rear suspension; chassis and body engineered as integral unit. — **Linn Coach & Truck Corp., Oneonta, N. Y.**

SCREENING AND CRUSHING PLANTS—Hammermill units have detachable 30-in. feeder and 6x6-ft. charging hopper. Feed conveyor is 30-in.x30-ft. channel frame type. Truck is 8 ft. wide, with 42-ft. traveling length and 12¼-ft. traveling height. Weight is 48,300 lb. complete with conveyors, brakes, charging hopper and feeder but without power unit. Company also announces new 10,000-lb. portable power unit and 7,000-lb. portable bin. — **Iowa Mfg. Co., Cedar Rapids, Iowa.**

*"THINK they last longer?
Mister, I KNOW*

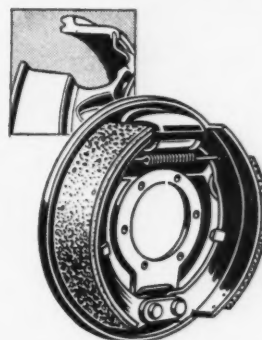
FORD TRUCKS LAST LONGER!"

That's what Mr. R. G. Colvert of Ardmore, Oklahoma, wrote recently. "One of our Ford Trucks 11 years old," he added, "has gone over 250,000 miles and it's still on the job, with lots of good miles in it!"




ONE big reason—FORD BRAKES STAND UP!

The wide, heavy, cast drum surfaces of Ford Brakes are non-warping and score-resistant. They are interlocked and fused with steel drum discs during casting, providing great strength and reducing weight. The two shoes are independently anchored, each shoe being actuated by its own hydraulic piston. Adjustment is extremely simple and entirely external. Brakes are exceptionally stable in adjustment. Entry of water and dust is minimized by closely fitted tongue-and-groove design, where edges of drums meet backing plates. Ford brake design promotes long lining life, consistent performance, extra-safe stopping ability and easy pedal pressure.



Bulk construction materials hauling is a field where Ford Truck stamina pays off in long life and low-cost maintenance. This heavy duty Ford Truck is equipped with a Fabco Dual Drive unit and a 6- to 8-yard dump body and hydraulic hoist by Anthony Co., Streator, Illinois.



THE **6**
YOUR PICK OF POWER
THE 



ONLY FORD GIVES YOU ALL THESE LONG-LIFE FEATURES: Your pick of power—the great V-8 or the brilliant Ford Six—extra-strength frames, with siderails doubled in heavy duty models—new Flightlight, 4-ring, oil-saving pistons—full-floating and $\frac{3}{4}$ -floating axles, with axle shafts free of weight-load . . . more than fifty such endurance-engineering features in all. It's because of this long-life construction that *of all trucks 14 years old or older on the road today, there are more Ford Trucks than all other makes combined!* More than 100 body-chassis combinations to choose from. Ask your Ford Dealer to show you!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE!



Parmanco

MECHANICAL FEED HORIZONTAL DRILL WITH TRACTION DRIVE

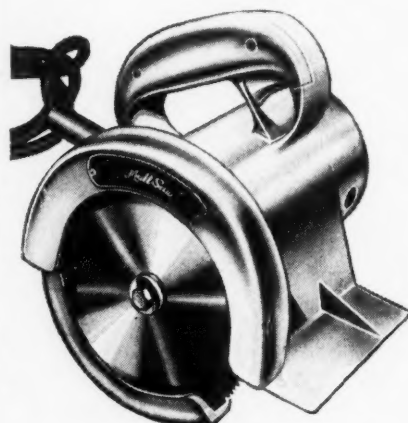
Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

**EFFICIENT STRIPPING STARTS WITH
EFFICIENT DRILLING**

**PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS**

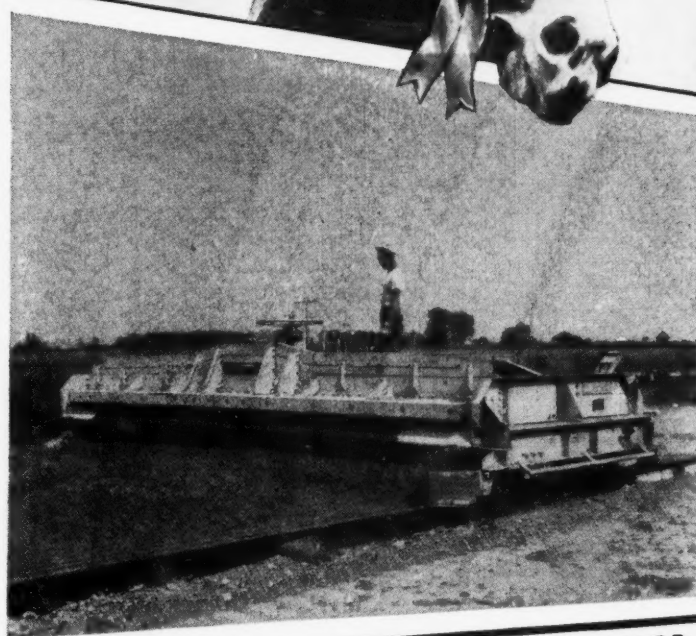
POWER SAW—New 6-in. portable electric hand saw, known as Model 60 Mallsaw, weighs 8½ lb. and its aluminum alloy die cast housings



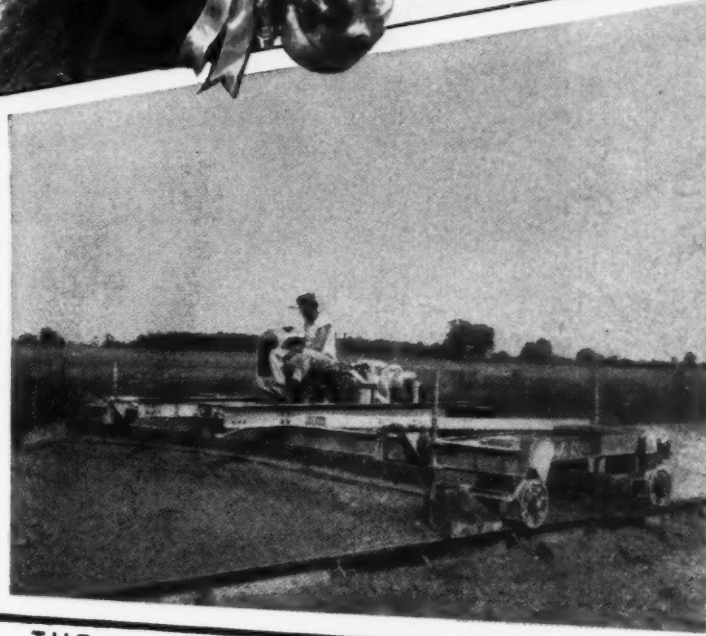
weigh less. Blade has cutting capacity up to 2 in. Motor turns blade at 3,000 rpm. at normal full load speed.—Mall Tool Co., Chicago 19, Ill.

POWER BURNER — Engine and compressor unit is made by Schramm to work in conjunction with latest tank and burner equipment of Aeroil Products Co. Result is packaged machine, without gears, belts or chains, self-starting, and with high portable flame production. Two burners make it possible to work in vertical as well as horizontal position without affecting volume or density of flame. By regulating air fuel valves, any type and length of flame can be produced. Skid model can be mounted on highway truck, and, with addition of pressure tank and spray bar, can be used to spray emulsions and concrete curing materials. Burner is useful for thawing aggregates and water lines.—Aeroil Products Co., 5701 Park Ave., West New York, N. J.

REFLECTIVE ROOF COATING—New roof coating, Richlume, is said to have unusual insulating, waterproofing, and fire-resistive qualities when applied with brush or spray to tar-and-gravel tar paper, built-up asphalt, or composition shingle roofs. Tests show Richlume to have high resistance to weathering, heat, cold and salt water, as well as ability to waterproof any bituminous roofing material which is not actually torn open or cracked too widely to be bridged by Richlume as it is applied. It is emphasized that this product is coating developed for use on bituminous roofing materials only. New plastic vehicle for aluminum pigment is claimed to produce close bond with roofing materials without penetrating below roof surface.—Richcraft Co., Chicago, Ill.



THE BLAW-KNOX CONCRETE SPREADER



THE BLAW-KNOX FINISHING MACHINE

The BLUE RIBBON Team!

The Blaw-Knox Transverse Blade CONCRETE SPREADER and the Blaw-Knox Concrete FINISHING MACHINE — a "blue ribbon" prize combination for finishing daily yardage that will chase your fastest pavers down the road as fast as they can put out concrete. If the concrete is dry and harsh, the vibratory paving attachment available for either machine insures peak production.

You'll get big yardage — with minimum crews. All Blaw-Knox Construction Equipment is designed to give just that kind of job performance.

See your nearest Blaw-Knox distributor for early deliveries — he will help you get that job started and keep it going on a steady and profitable basis.

BLAW-KNOX DIVISION of Blaw-Knox Co.
2086 Farmers Bank Bldg. Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington

BLAW-KNOX

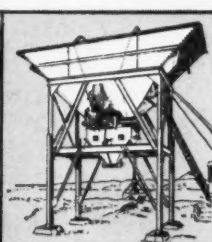
CONSTRUCTION EQUIPMENT



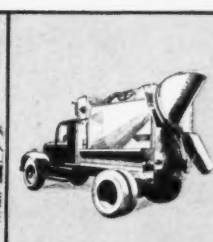
CONCRETE
BUCKETS



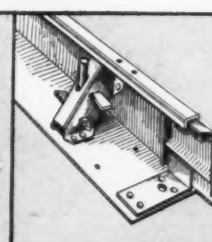
STEEL
STREET FORMS



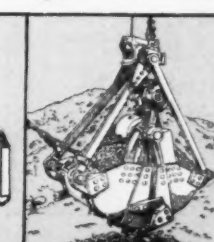
AGGREGATE
BATCHING PLANTS



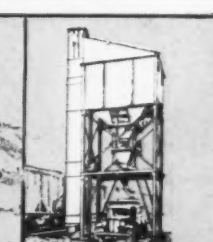
TRUCK MIXERS



PAVING FORMS FOR
ROADS & AIRPORTS



CLAMSHELL
BUCKETS



BULK
CEMENT PLANTS

SMOOTH POWER



THE NEW ONAN AIR-COOLED "CK" ENGINE 10 H.P. 4-CYCLE

Two-cylinder horizontal opposed design gives the new, heavy-duty CK engine unusual running smoothness. Short, rigid crankshaft . . . 2-inch diameter main and 1 5/8-inch diameter rod bearings . . . pressure lubrication . . . axial-flow cooling fan . . . aluminum construction giving 4-to-1 cooling advantage over cast iron . . . weighs only 97 pounds and fits neatly into 15" x 19" x 18" space. Designed to solve engine power problems in industry, agriculture and other fields. Proven by thousands in use today . . . now in mass production . . . prompt delivery.

Also has: Built-in precision governor . . . downdraft concentric carburetor for wide-angle operation . . . oil bath air cleaner . . . fuel pump . . . oil pressure gauge . . . crankcase fumes exhausted to carburetor . . . hermetically sealed magneto ignition coil with easy-to-get-at breaker points, 2-qt. oil capacity.

ONAN ELECTRIC PLANTS—A.C.—350 to 35,000 watts in standard voltages and frequencies, D.C.—600 to 10,000 watts, 115 and 230 volts. Battery chargers—500 to 3,500 watts, 6 to 115 volts.

ONAN AIR-COOLED ENGINES—CK: 2-cylinder opposed, 10 h.p.; BH: 2-cylinder opposed, 5.5 h.p.; 1B: 1-cylinder, 2.5 h.p.

WRITE FOR illustrated, complete specifications



Electric Starting

Built-in electric push-button or automatic starting is optional; adds little to overall dimensions.



D. W. ONAN & SONS INC.
4953 No. Royalston Ave. Minneapolis 5, Minn.



ONAN 4-Cycle ENGINES

CARBON MONOXIDE ALARM—

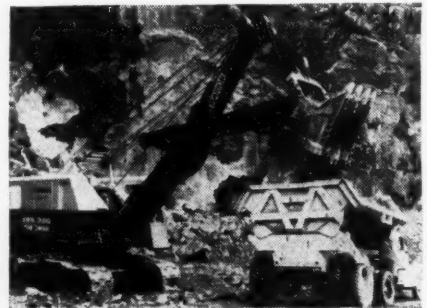
Alarm operates continuously, giving both visible and audible warning when carbon monoxide concentration in air reaches predetermined level. Predetermined settings can be made for concentrations as low as .02 percent (2 parts per 10,000), point at which several hours' exposure would be required to produce first symptoms of carbon monoxide poisoning. Unit draws continuous



sample of surrounding air and forces it over catalyst which oxidizes all carbon monoxide to carbon dioxide. When concentration reaches predetermined meter setting, alarm horn sounds and red light jewel is illuminated. Both signals continue to operate until instrument is manually reset. Completely self-contained in weatherproof case, alarm requires only connection to proper rated source of power. It consumes no more current than 100-w. bulb and is equipped with brackets for wall mounting. Bulletin DR-3 describes unit.—Mine Safety Appliances Co., Pittsburgh 8, Pa.

SHOVEL, DRAGLINE, CLAM-SHELL, CRANE — Marion 93-M,

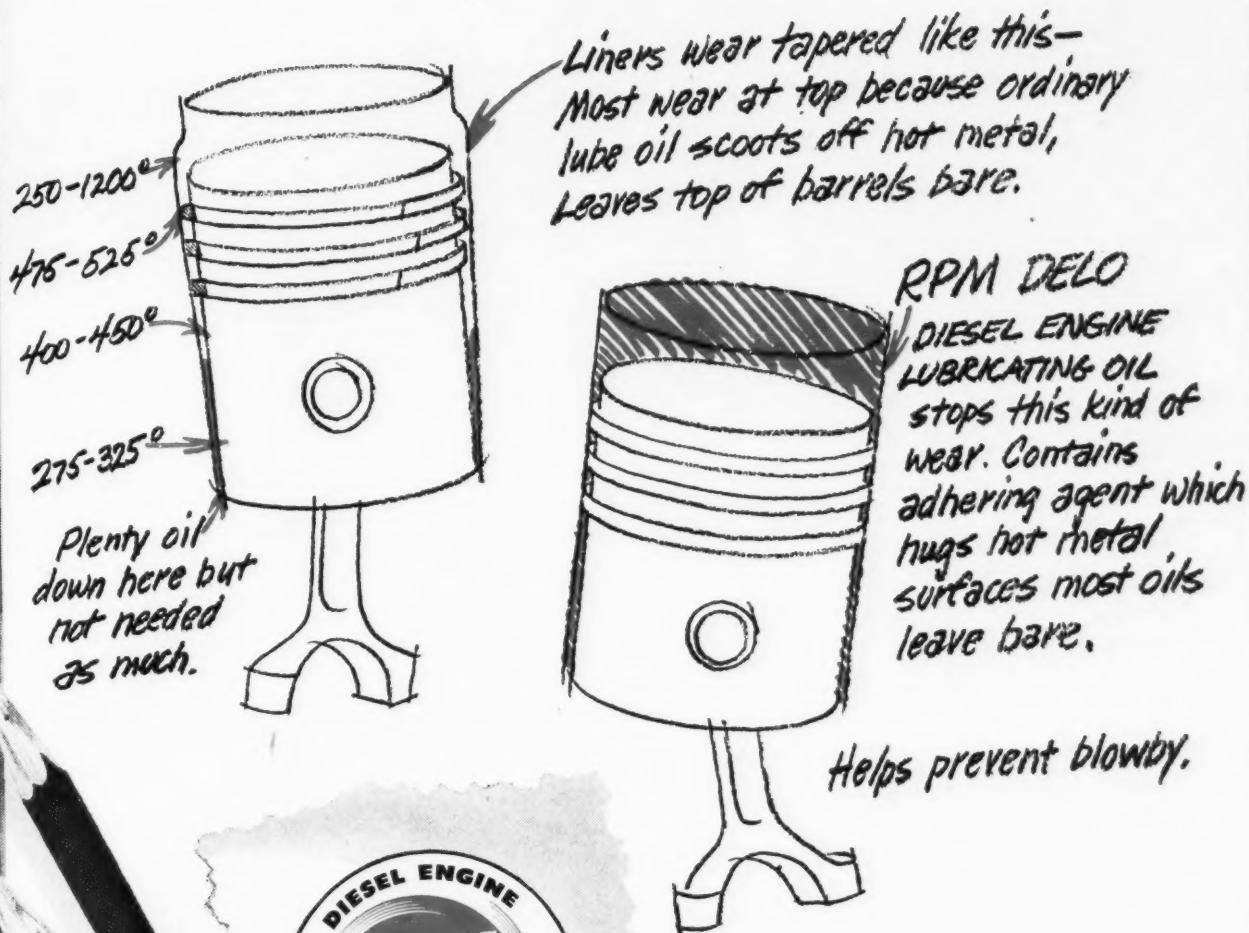
a heavy-duty, all-purpose shovel, dragline, clamshell and crane, is full-rated 2 1/2-cu. yd. machine designed for large-scale construction projects. Features include Marion air control, ease of convertibility, ease of shipment, simplicity and ac-



cessibility of all machinery and moving parts, careful proportioning.
(Continued on page 128)

LUBE MEMO

Idea for preventing tapered cylinders!



*Call representative
Today*

STANDARD OF CALIFORNIA • San Francisco, Calif.
THE CALIFORNIA COMPANY • Denver, Colo.

STANDARD OIL COMPANY OF TEXAS • El Paso, Texas
THE CALIFORNIA OIL COMPANY • New York



WARRINGTON-VULCAN

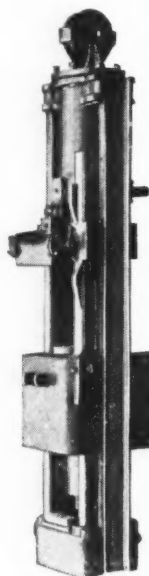
Single-Acting

STEAM PILE HAMMERS

Like bustin' a bronco, taming a tough pile is no soft touch. It takes powered persistence and irresistible impact—tamed action that drives but avoids excess strain on the piling. These are the pile-taming qualities of the Warrington-Vulcan Single-Acting Steam Pile Hammer.

It operates at medium steam pressure to deliver a moderate frequency of low velocity blows from a relatively heavy ram—effective on wood, concrete or steel piles. It minimizes operating and maintenance costs through rugged strength and simplicity of design, with all working parts exposed for easy accessibility.

Write for details on this dependable pile hammer that has been taming the toughest since 1887.



VULCAN IRON WORKS
Since 1852

331 North Bell Avenue

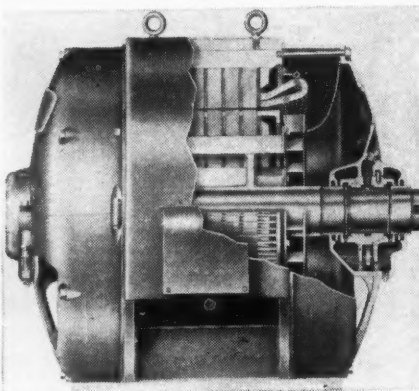


Chicago 12 --- Illinois

(Continued from page 126)

Shovel front-end equipment includes all-welded, rounded-edge, box section boom, twin welded full box section dipper handles and heavy-duty manganese-steel-front dipper with inserted, socket-type dipper teeth. For dragline or clamshell service, varying boom lengths and bucket combinations are available. Live boom hoist is standard equipment.—Marion Power Shovel Co., Marion, Ohio.

SQUIRREL - CAGE INDUCTION MOTORS—Newly available heavy-duty squirrel-cage induction motors for large-power drives from 100 to 1,000 hp., 1,800 rpm. and lower speeds, have fabricated steel frame that shuts out falling particles, makes operation quieter and invites



easy cleaning. Inspection and blowing out is simplified on larger ratings with access plates designed for speedy removal and replacement. Sealed bearings can be cleaned and refilled without motor disassembly. Double end ventilation is provided by blower on each end of rotor. Starting characteristics are NEMA Class B (normal torque, low starting current), for across-the-line starting.—Electric Machinery Mfg. Co., Minneapolis 13, Minn.

ROLLED NICKEL AND MONEL CLAD STRIP—Rolled nickel and Monel clad strip is available in widths between ¼ in. and 10¼ in., in coils up to several hundred feet depending upon gage. In cold rolled condition it is produced in thicknesses between .010 and .125 in. In hot rolled condition it is available in thicknesses between .095 and ¼ in. Depending on requirements, clad strip is furnished with cladding on one side only or on both sides. Standard cladding thickness is 10 percent of total thickness. On double clad strip three layers would be 10-percent nickel or Monel, 80-percent steel, and 10-percent nickel or Monel. It is impossible to separate nickel or Monel cladding from steel base by any other means than chemical dissolving out of steel from cladding.—Superior Steel Corp., Carnegie, Pa.

Worthington-Ransome Blue Brute Distributors

See ad on page 129 for list of equipment in each line

Worthington-Ransome Distributors

Ala., Birmingham, Construction Equipment Co.
Montgomery, Burford-Toothaker Tractor Co.
Alaska, Anchorage, Airport Mach. & Storage Co.
Ariz., Phoenix, Lee Redman Equipment Co.
Ark., Fort Smith, R. A. Young & Son
Little Rock, R. A. Young & Son
Cal., L. A. Golden State Equip. Co.
San Francisco, Coast Equip. Co.
Colo., Denver, Power Equipment Co.
Conn., Wallingford, Wilhelm-Davies Co., Inc.
Fla., Gainesville Constr. Equip. & Supply Co., Inc.
Fla., Miami, Allied Equip., Inc.
Orlando, Highway Equipment and Supply Co.
Tampa, Epperson & Company
Ga., Atlanta, Tractor & Machinery Company
Ida., Boise, Olson Manufacturing Co.
Ill., Chicago, Chicago Construction Equip. Co.
Ill., Chicago, Thomas Hoist Co.
Ill., Chicago, J. A. Roche
Iowa, Cedar Rapids, McNall Mach. & Supply Corp.
Ky., Harlan, Crumhorn Equip. & Supply Co.
Louisville, Williams Tractor Co.
Maine, Portland, Maine Truck-Tractor Co.
Mich., Muskegon, Lakeshore Machy. & Supply Co.
Minn., Minneapolis, Phillippi-Murphy Equip. Co.
Miss., Jackson, Jackson Road Equip. Co.
Mo., Clayton, The Howard Corporation
Mo., Kansas City, Mach. & Supplies Co.
St. Louis, W. H. Reaves
Montana, Billings, Interstate Truck & Equip. Co.
Helena, Caird Eng. Works
Nevada, Elko, C. W. Paul Hardware
N. J., No. Bergen, American Air Comp. Corp.
N. M., Albuquerque, Bud Fisher Co.
Roswell, Smith Machy. Co.
N. Y., Albany, Milton-Hale Machinery Co.
New York, Hodge & Hammond, Inc.
New York, Railroad Materials Corp.
Syracuse, Milton-Hale Mach. Co.
N. C., Raleigh, Smith Equip. Co.
N. D., Fargo, Smith Commercial Body Works, Inc.
Ohio, Cincinnati, Carroll-Edwards & Co.
Dayton, Carroll-Edwards & Co.
Oregon, Portland, Andrews Machinery
Pa., Wilkes-Barre, Ensminger & Co.
Mechanicsburg, Amer. Equip. Corp.
Philadelphia, Metalweld, Inc.
S. C., Columbia, Smith Equipment Co.
Tenn., Knoxville, Dempster Bros., Inc.
Memphis, Independent Tractor Co.
Nashville, Dempster Bros., Inc.
Tex., Amarillo, T. W. Carpenter Equip. Co.
Dallas, Shaw Equip. Co.
San Antonio, Patten Machy. Co.
Tyler, D. M. McClure Equip. Co.
Utah, Salt Lake City, J. K. Wheeler Mach. Co.
Vt., Barre, A. M. Flanders, Inc.
Va., Richmond, Highway Machy. and Supply Co.
Wash., Spokane, Andrews Equip. Service
W. Va., South Charleston, Allied Equip. Co.
Wise., Milwaukee, Drott Tractor Co., Inc.

Ransome Distributors

Ark., Fort Smith, Central Welding Equip. Co.
D. C., Washington, M. A. Doetsch Mach. Co.
La., New Orleans, Ole K. Olson Co.
Md., Baltimore, Stuart M. Christhill & Co.
Mich., Detroit, T. G. Abrams
Welding, Equip. & Supply Co.
N. Y., Buffalo, Murray Equip. Co.
N. Y., Rochester, B-G Equip. Co.
O., Cleveland, H. B. Fuller Equip. Co.
Pa., Pittsburgh, Arrow Supply Company

Worthington Distributors

Ind., Indianapolis, Reid-Holcomb Company
La., New Orleans, Wm. F. Surgi Equip. Co.
Md., Baltimore, D. C. Elphinstone, Inc.
Mass., Cambridge, Field Mach. Company
Mich., Detroit, W. H. Anderson Co., Inc.
Flint, Gransden-Hall & Co.
N. Y., Buffalo, Dow & Co., Inc.
New York, Air Compressor Rental and Sales
O., Cleveland, Gibson-Stewart Co.
Toledo, The Kilcorse Mach. Co.
Pa., Allentown, H. N. Crowder, Jr., Inc.
Pittsburgh, Atlas Equip. Corp.
Texas, El Paso, Equip. Supply Co.
Washington, Seattle, Star Machinery Co.
Wyoming, Cheyenne, Wilson Equip. & Supply Co.

BUY BLUE BRUTES

Worthington Pump and Machinery Corp.

Worthington-Ransome Construction
Equipment Division

Holyoke, Massachusetts

NOW... A CONTRACTOR'S PUMP BY WORTHINGTON



Meet the Blue Brute Portable Self-Priming Centrifugal Pump, newest development of Worthington's 100-years-plus of experience in the design and manufacture of pumps. Fabricated of rust and abrasion-resisting alloy steel, it is ruggedly built to take the hardest knocks, yet light in weight for easy portability.

Fast, unfailing self-priming is a built-in feature of its advanced hydraulic design — not a troublesome auxiliary device. There is no priming valve to get out of order, none of the usual "recirculation" that reduces capacity or efficiency. The result is quick, dependable pick-up of water at all times.

Thoroughly tested in the modern research laboratories of the world's largest builder of pumps, this latest addition to the famous Blue Brute Construction Equipment line is a compact, streamlined portable pumping unit — in which simplicity of design and sturdiness of construction provide top performance under severest operating conditions . . . further proof that *there's more worth in Worthington-Ransome.*

For additional information on Blue Brute Portable Self-Priming Centrifugal Pumps, see your nearby Worthington Distributor. Or, write for Bulletin W-2010-B2.

H6-25



Blue Brute Pumps are built to the standards of the Associated General Contractors of America, Inc., and carry the A.G.C. rating plates.

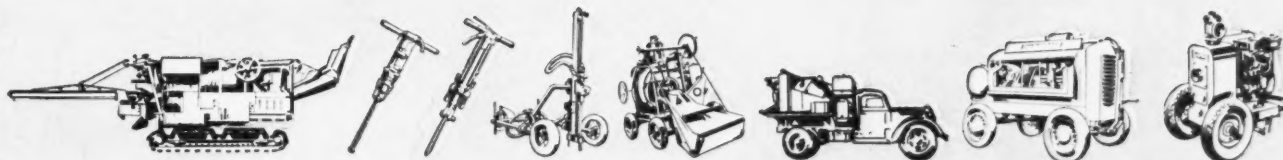
Your Blue Brute Distributor will gladly show you how Worthington-Ransome construction equipment will put your planning on a profitable basis. His name is listed on page 28.

WORTHINGTON



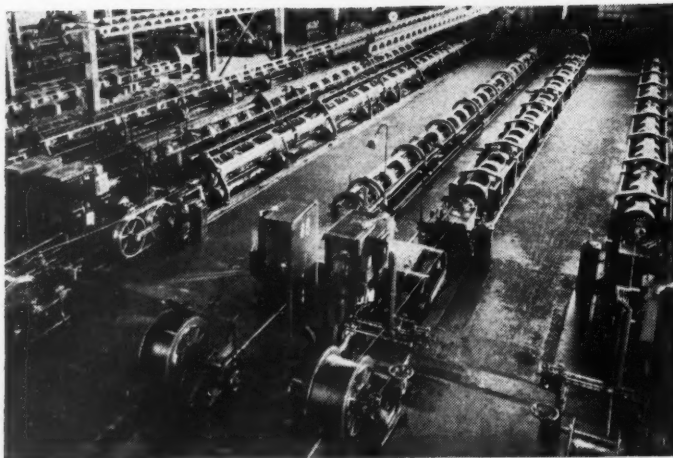
Worthington Pump and Machinery Corporation, Worthington-Ransome Construction Equipment Division, Holyoke, Mass.

BUY BLUE BRUTES

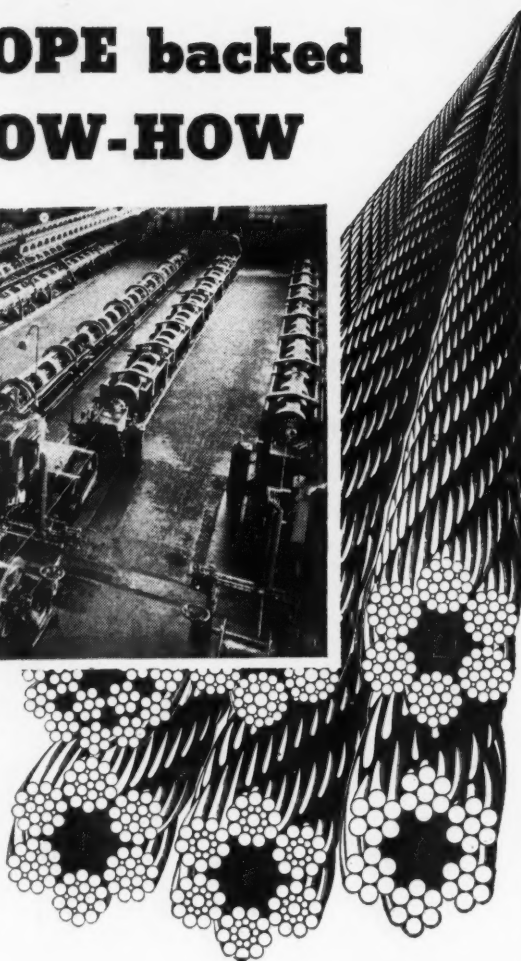


IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

Buy the ROPE backed by the KNOW-HOW



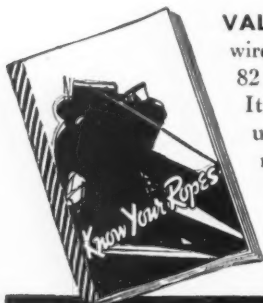
Here are a few of the stranding machines in Wickwire Spencer's modern wire rope mill. In principle, these machines are not unlike those found in many rope mills. The difference—the thing that makes Wickwire Rope longer lasting—lies in the making of the steel and drawing of the wire used in the rope.



Only steel wire with the highest possible degree of perfection in hardness, strength, toughness and fatigue-resistance is used. And every wire used in making Wickwire Rope is drawn until it's accurate within a fraction of a thousandth of an inch.

Distributors and Wickwire Rope

engineers in all parts of the country are prepared to render prompt service in solving your wire rope problems and meeting your wire rope needs. Wickwire Rope is available in all sizes and constructions, both regular lay and WISSCOLAY Preformed.



VALUABLE GUIDE FOR ALL ROPE USERS—Thousands of wire rope users have found that the information packed in the 82 pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. This easy-to-read, profusely illustrated manual is free. For your copy write, Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Mass.

WICKWIRE ROPE

A-PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
OF THE COLORADO FUEL AND IRON CORPORATION



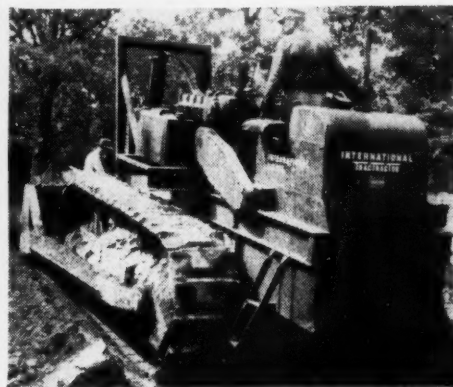
WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass.

GENERAL OFFICE—500 Fifth Avenue, New York 18, New York

SALES OFFICES—Abilene (Tex.) • Boston • Chattanooga • Chicago • Denver • Detroit
Philadelphia • Tulsa • Fort Worth • Houston • Newport News • New York

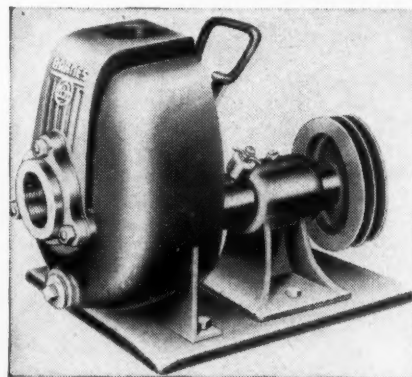
PACIFIC COAST—The California Wire Cloth Corporation, Oakland 6, California

BULLDOZER—Hydraulically controlled bulldozer is precision engineered to insure rugged strength and ease of operation. Blade, which comes in different widths, has scientifically designed contour, high lift for throwing, and effective down pressure for digging. Cutting blade,



which can be removed easily, is made of specially treated hard alloy steel to insure sharp cutting edge and long life. Finger-tip hydraulic controls and full visibility provide maximum ease and efficiency of operation. Blade angle can be changed to fit job. Correct balance enables full power of tractor to be exerted on blade.—Jaques Power Saw Co., Denison, Tex.

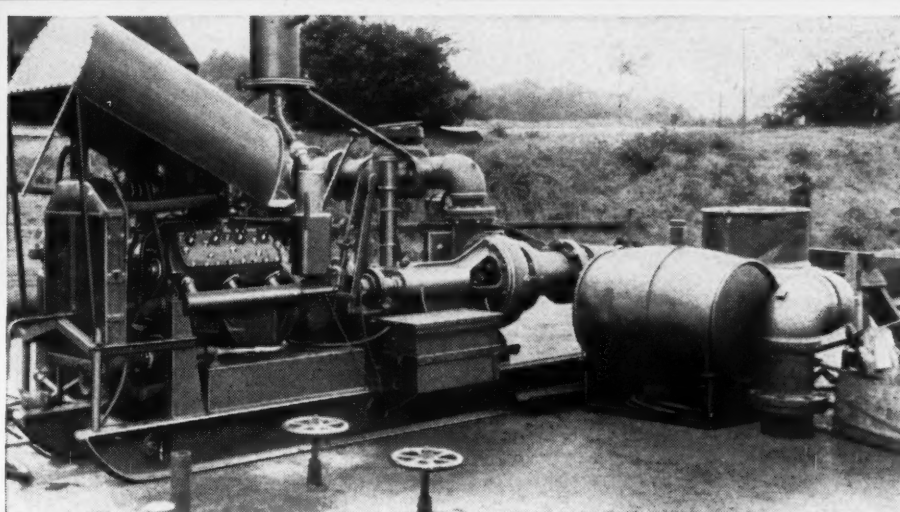
UNIVERSAL DRIVE PUMP—New universal drive automatic centrifugal pump with 1½-in. suction discharge has capacity up to 5,700 gph. and pressure up to 35 psi. This 3MU model incorporates all standard Barnes features including automatic prime. It can be driven from any available power source, either elec-



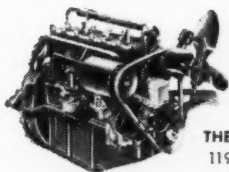
tric motor or gasoline engine, and is equipped with heavy-duty coupling head, incorporating double ball bearings. Shaft, made of highly polished, case-hardened steel, is mounted on ball bearings to carry radial load. Available as accessory is type A, two-groove ¾-in. bore pulley for belt-driven applications. Direct drive can be accomplished with either gasoline engine or electric motor power source by means of shaft coupling. — Barnes Manufacturing Co., Mansfield, Ohio.

"—speaking of FORD ENGINE ECONOMY—"

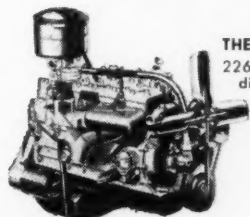
(as millions of owners have been
doing for years)—



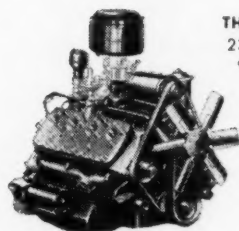
**"This Ford V-8 engine Has Pumped 1,250,000
Barrels of Oil in a Year at 1/4¢ a Barrel!"**



THE 40-H.P. FOUR
119.5 cubic inches
displacement



THE 90-H.P. SIX
226 cubic inches
displacement



THE 100-H.P. V-8
239 cubic inches
displacement

Berard Bros. Towing Co., of New Iberia, La., operates four tugs and nine barges, transporting crude oil. The cost of pumping, cited above by Mr. B. J. Berard, includes labor. In a letter, Mr. Berard adds, "In our many years of crude oil barge transportation we have yet to encounter any pumping unit to equal the economy and performance we now get."

Efficiency, reliability and economy such as this—backed by famous Ford Service everywhere—explain why so many builders of engine-powered equipment have standardized on Ford-built engines. Any electric generating unit, compressor, road and paving machinery, irrigating and fire-fighting unit—any such equipment that must go out "on its own" and pay its way in performance—is well powered when it's Ford-powered. Write for detailed data. Address—

FORD MOTOR COMPANY
Industrial and Marine Engine Department
3506 SCHAEFER ROAD • DEARBORN, MICHIGAN

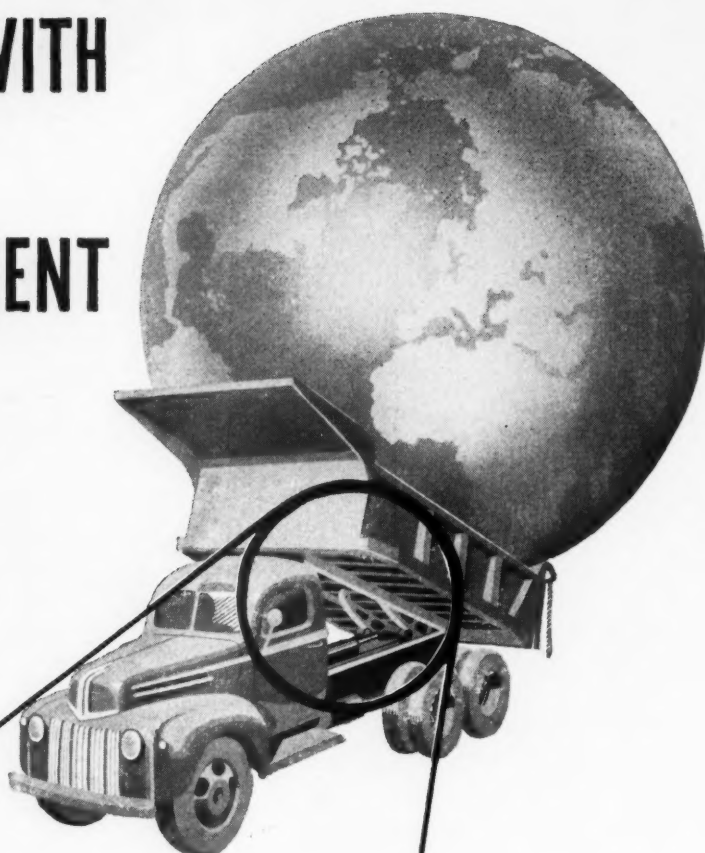
FORD-BUILT ENGINES

PREFERRED FOR INDUSTRIAL AND MARINE POWER

MOVE THE EARTH WITH GAR WOOD EQUIPMENT

Yes, Gar Wood Hydraulic Hoists and Dump Bodies move the earth. Not as illustrated, of course, but all over the world on earth moving projects such as dams, highways, railways, airports and many more, Gar Wood equipment is on the job, doing it fast, easily and economically.

In addition to earth moving there are Gar Wood Hoists and Bodies



The patented Gar Wood
Cam and Roller Hoist for
power, long life, trouble
free operation.



GAR WOOD
GW
TRADE MARK
INDUSTRIES

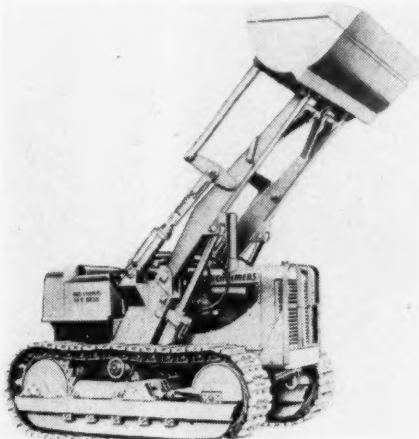
especially designed for the efficient hauling of coal, rock, sand, gravel, garbage, rubbish and other materials.

For the answer to your hauling problem consult your nearest Gar Wood Branch or Distributor. There's one in every principal city.

GAR WOOD INDUSTRIES, INC.
Hoist and Body Division
WAYNE, MICHIGAN

ALSO BUILDERS OF WINCHES & CRANES...TANKS...ROAD
MACHINERY...DITCHERS & SHOVELS...HEATING UNITS...BOATS

TRACTOR SHOVEL—Model TS-5 Tracto-Shovel for use on Allis-Chalmers HD-5 long track, rigid truck frame diesel tractor is first in line of tractor equipment that will be built by this company. It has hydraulically-controlled bucket operated by double-acting lift and dumping cylinders. These cylinders

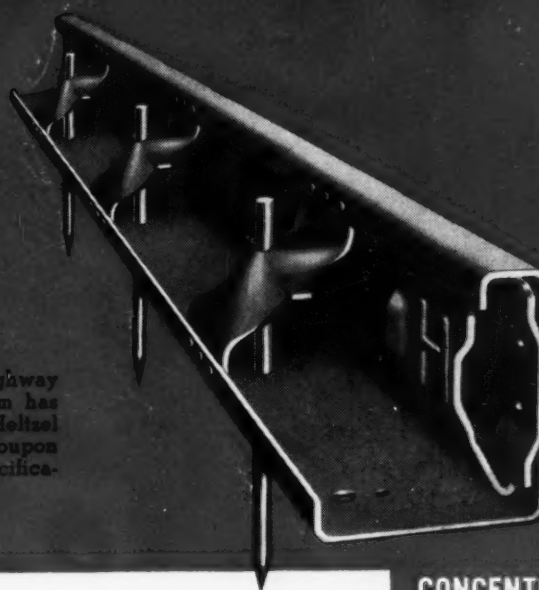


are designed to provide adequate down pressure and controlled dumping and closing of bucket. Bucket can be dumped or closed at any height, quickly or slowly, and has automatic tilt-back to prevent spillage. Tractor-width buckets of 1-cu. yd. capacity are standard equipment, with bulldozer blades or special buckets optional. Shovel frames are mounted directly to tractor and contain 25-gal. oil reservoir. Overall length of Tracto-Shovel is 14 ft. 6 in., width is 6 ft. 3½ in., and height, with bucket down, is 5 ft. 11½ in.—Tractomotive Corp., Findlay, Ohio.

DOUBLE-BOILER ROAD KETTLE

—Model F-10 has inner kettle to contain filler compound. It is surrounded by outer kettle containing heat transferring agent, such as special oil. Two kettles are mounted in regular kettle housing, completely insulated by asbestos. Two kerosene burners are furnished for rapid starting. Oil is raised to 500 deg. in from 30 to 45 min. and that heat maintained with one burner. Oil can be heated to any temperature up to its flash point of 750 deg. Compound in inner kettle gradually raises to proper temperature without any hazard of coking or over-heating. Inner kettle is divided by screen into two sections, so that, during operations, compound can be added to front section to melt and flow through to rear section. Screen prevents passage of semi-molten material to obstruct kettle outlet. In rear compartment of compound kettle is a hand operated paddle-type agitator for stirring compound, which moves through 160 deg.—White Manufacturing Co., Elkhart, Ind.

build better with HELTZEL STEEL FORMS



Heavy Duty Highway and Airport Form has many exclusive Heltzel features. Send coupon for complete specifications.

HIGHWAYS

The heavy duty highway and airport forms have several exclusive Heltzel features . . . 2½" tread . . . up-turned base flange — 50% additional strength . . . extended lock joint guide . . . hot pressed ¼" lock joint—V type eliminates clogging . . . non-clogging single wedge stake pockets that are not affected by vibration. The base flange is also drilled for auxiliary stakes or bolting on risers. The ¾" form is recommended for all construction up to 20' widths. The ¼" form is recommended for construction over 20' in width. Both forms meet all highway specifications.

CURBS

CURB AND GUTTER

SIDEWALK

AIRPORT

Heltzel also has steel forms for curb, combined curb and gutter, sidewalk, rigid radius and flexible radius.

CONCENTRATED

Engineering
IN
CONCRETE
CONSTRUCTION

Heltzel
BUILDS IT BETTER

BINS, Portable and Stationary
CEMENT BINS, Portable and Stationary
CENTRAL MIXING PLANTS
BATCHERS (for batch trucks or truck mixers with automatic dial or beam scale)
BITUMINOUS PAVING FORMS
ROAD FORMS (with lip curb and integral curb attachments)
CURB FORMS
CURB AND GUTTER FORMS
SIDEWALK FORMS
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CONCRETE BUCKETS
SUBGRADE TESTERS
SUBGRADE PLANERS
TOOL BOXES
FINISHING TOOLS FOR CONCRETE ROADS

Heltzel Steel Form & Iron Company, Warren, Ohio

SEND ME STEEL FORM CATALOGS:

☐ B-19 Steel Highway and Airport Forms

☐ B-19A Steel Dual Duty Airport Forms

☐ A-20 Steel Forms for Curbs or Curb and Gutters or Sidewalks.

Name _____

Address _____

(Type of construction usually engaged in)

HELTZEL STEEL FORM & IRON CO.
WARREN, OHIO • U. S. A.

CLEVELANDS

are engineered and built
to fit YOUR trenching job



**WHETHER IT'S FOR GAS . . GASOLINE . .
OIL . . WATER . . SEWER LINES . . TELEPHONE,
TELEGRAPH CONDUIT . . AIRPORT and FARM
DRAINAGE . . or BUILDING FOUNDATIONS**

Ask any man who operates a CLEVELAND why he likes them—Swears By Them.

He'll probably tell you first about the ease of operation due to the operator visibility, convenience of the controls and the quick sure handling, thru brake steering and full crawler tracks. Then he'll certainly mention the fine balance and sure-footedness of the machine that enables him to confidently travel the most rugged terrain. He'll talk enthusiastically about the ample power for the toughest digging and the wide range of transmission controlled speeds that make it possible to use just the right speed for the work in hand.

He'll mention, of course, the sturdy, compact, all-welded construction of CLEVELANDS that assures their going for long periods with only a minimum of even minor repairs and the fact that when field repairs are necessary they are made with minimum loss of time because of CLEVELAND's accessible unit type construction.

These, plus low fuel and lubricating costs, are some of the reasons he'll explain for his enthusiasm about CLEVELANDS. He'll probably wind up saying that CLEVELANDS are really engineered and built from the ground up for the trenching job as proved by the way they've really put out the trench for him.

FOR DETAILED INFORMATION CONTACT YOUR CLEVELAND DISTRIBUTOR

THE CLEVELAND TRENCHER CO.
20100 ST CLAIR AVENUE • CLEVELAND 17, OHIO

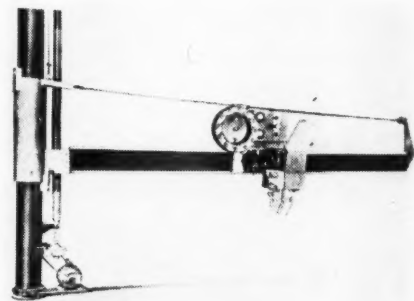
HYDRAULIC PIPE BENDER —

Power for this portable hydraulic pipe and rod bender can be provided by any make auto jack of 8-ton capacity or more. Stock size frame is for pipe bending up to 2 in. and rod bending up to 1¼ in. Larger frames can be made to order. Two

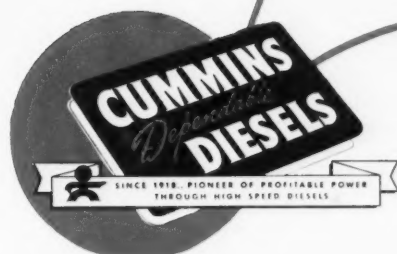


studs remove yoke and jack lifts frame. All-steel dies and blocks are precision turned. Segment at minimum radii of each pipe size is standard equipment. End blocks furnished are square, with each block made to take two sizes of pipe. Roller end blocks are used on all 180-deg. bending and require roller of pipe size. — **E. R. Wengenroth, Contractors Equipment, 1372 River Rd., West Englewood, N. J.**

ARC POSITIONER — New service consists of automatic shielded arc welding head, traveling on beam that encompasses vertical zone of 8 ft., with assembly rotating around fixed axis to maximum radius of 20



ft. It is manufactured in three standard sizes, providing 10, 15, and 20-ft. horizontal arc travel. Traveling assembly is Lincolnweld head and carriage.—**Mark F. Gouran, Welding Engineer, 7426 Devon St., Mt. Airy, Philadelphia, Pa.**



Efficient POWER



Low weight per horsepower . . . smooth operation over a wide range of engine speeds . . . simple design for easy servicing . . . these are reasons for the dependable, low cost performance that makes Cummins Dependable Diesels the most efficient power source in the 84 to 275 hp range.



CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

CLOTHING and BOOTS

Made for *Extra* Wear and Comfort

Goodall clothing and boots are made to stand the rough service involved in construction, roadbuilding and other outdoor work. Yet they're built for comfort, too . . . with definite refinements that are appreciated by the men who must wear them for long periods of activity.

LONG COAT, Style 338. A husky, roomy coat, 50" long, that offers maximum resistance to snagging. Dull black rubber on white fabric. Double ventilated back. Corduroy edged collar. Patch pockets with flaps. Sizes 34 to 46.

SHAFT JACKET, Style 80. Thoroughly waterproof, dull-finish rubber. Two inside breast pockets. Standing corduroy collar. Slot-and-buckle fasteners. Length, 30". Sizes, small, medium, large.

SHAFT OVERALLS, Style 81. Same durable material as Jacket, with corded buttonholes. Length, 24". Sizes, small, medium, large.

"TOE-SAVER" BOOTS. Famous for their durability and comfort, and the positive protection afforded by the patented built-in steel box safety toe, identified by the red toe cap. Grid-tread soles assure long wear and prevent slipping on wet surfaces. Made in short, three-quarter and full-hip lengths.



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WE ARE
PARTICIPANTS IN THE
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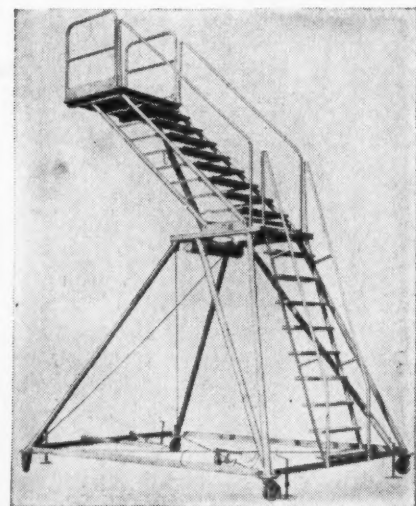
Established 1870

ASPHALTING ROOFS—Complete equipment for unique method of asphaltting roofs consists of Mack Model EH tractor, especially-designed tank and Schramm air compressor. This 1,200-gal. asphalt tank is divided into four compartments, with each compartment equipped



with agitators developing 750 lb. pump pressure. Pumps are piped through double reels enclosed in skirting of body. Air pressure is provided by 210-cu. ft. Schramm four-wheel, spring-mounted air compressor. Asphalt is pumped directly to roof and gunned on under 35-lb. air pressure at central head. Method was designed and patented by Donald R. Burroughs, president, **Acorn Protective Maintenance Co., Ware, Mass.**

ADJUSTABLE WORK STAND — Aerostand, hydraulically operated adjustable work stand eliminates scaffolding. A 16-sq. ft. work platform, with maximum static load capacity of 1,500 lb. it is hydraulically elevated or lowered to any working level from 3 to 24 ft. Unit features exclusive and patented use of auto-



matic and self-adjusting steps which maintain their position parallel to ground. Scaffolding strips, stand extensions and hoist attachments are general utility features. All models are equipped with guard rails and skidproof surfaces on platforms and steps. Frames of welded tubular steel are mounted on swivel casters with caster locks. Truck locks hold stands stationary when in service. Tow bars, scaffold strips, stand extensions and hoist attachments are optional equipment. — **Airquipment Co. Dept., GE, Burbank, Calif.**



FAST

ADAPTABLE

Snap-on BOXOCKET WRENCHES

Powerful, safe leverage that invites confident wrench speed

Slipping handily into hard-to-get-at places . . . engaging the nut on all *six* corners with an encircling can't-slip-can't-spread grip . . . needing only *half the space* of an end wrench for full handle movement . . . Snap-on Boxockets are *speed* tools and *safety* tools on tough nut-turning operations. Chamfered openings slip readily over the nut. Double broaching permits operation within a 15° arc. Round handles provide comfortable grip. Snap-on Boxockets work swiftly and efficiently in many spots inaccessible to other wrenches.

For maximum usefulness on a wide range of work, Snap-on offers 13 types of its popular Blue Point Boxockets — in angled, offset, combination and flare nut heads — and in standard wrench sizes from $\frac{3}{8}$ " to 4 $\frac{3}{8}$ ". Available through Snap-on's nationwide direct-to-user tool service. Write for the Snap-on catalog of industrial wrenches.

SNAP-ON TOOLS CORPORATION
8084-D 28th AVENUE • KENOSHA, WISCONSIN





**For Resurfacing
Secondary Roads
and City Streets**
Also for
New Construction

THE H & B MOTO-PAVER

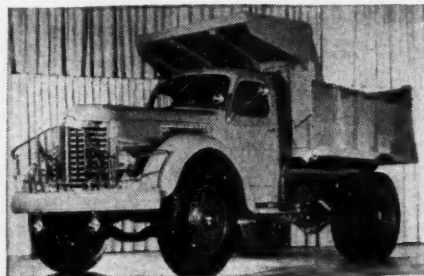
• The H & B Moto-Paver is especially adapted for resurfacing secondary roads and city streets, but is also highly efficient on new construction. Here, for the first time, is a self-contained, single-unit machine which accomplishes the entire mixing and laying job in one continuous operation. The Moto-Paver delivers the mixed material spread and struck off on the road surface, ready for rolling. Paving width is adjustable from 8'6" to 12'0", and thickness up to a maximum of 7". The strike-off blade is adjustable to hold accurately to specified grade and crown.

The Moto-Paver has been successfully operated using gravel, stone or slag aggregates, and with most types of emulsions, RC, MC and SC asphalts and tars. Illustrated bulletin giving complete information and specifications will be sent on request.

HETHERINGTON & BERNER INC.
735 Kentucky Ave., Indianapolis 7, Ind.



NEW TRUCKS—Four new trucks have been added to International's line: Model KB-8-5 chassis, with 179, 197 or 215-in. wheelbase, is heavy-duty, four-wheel drive six-wheeler, powered by Red Diamond, 361-cu. in. displacement engine. Model KB-1 with pickup body has 113 or 125-in. wheelbase, powered by a 6-cylinder



Green Diamond engine. Model KBR-11, with 6-cu. yd. body and cab protector and 149, 161, 179 or 197-in. wheelbase, uses 451-cu. in. displacement valve-in-head Red Diamond engine. Model KB7, 134, 146, 158 or 176-in. wheelbase, with 3-way hoist and round front end 3-cu. yd. dump body, uses 269-cu. in. displacement Blue Diamond engine.—**International Harvester Co., Motor Truck Division, 180 North Michigan Ave., Chicago 1, Ill.**

REDUCTION PULLEY—Compactly operating on inside of V-belt sheave, newly designed wide range speed reducer, Hart reduction pulley, replaces customary gear boxes, gear head motors, and all other types of speed reducers. Pulley drives its gears and performs powerful speed reductions with its mechanism entirely inclosed within its own V-belt sheave. Various speed reduction ratios up to 600-to-1 can be built into unit and applied wherever greater power transmission efficiency from motor to driven machine is required. Simplicity of design and compactness of pulley eliminate need for special mountings on driven machinery. Light in weight and no larger than V-belt sheave, one man can install entire unit simply by slipping it over shaft of machine to be driven and adjusting V-belts. Output shaft may be extended entirely through pulley for maximum support and strength.—**Hart Engineering & Sales Co., 2015 W. Clybourn St., Milwaukee 3, Wis.**

PORTABLE GENERATOR—Portable gasoline-engine-driven starter-booster Homelite generator gives high cranking speed and strong spark necessary for starting in sub-zero weather. Easily connected to battery terminals, full capacity of generator plus current from battery
(Continued on page 140)



DIPPERS *with* IDEAL WEIGHT CAPACITY RATIO

FOR BIGGER PAYLOADS — AMSCO PLUG-WELDED DIPPERS

Amsco Plug-Welded Dipper Doing Tough Rock Digging Job at Lassiter Quarry of Bryan, Monroe Co., Raleigh, N. C.

LIGHTER WEIGHT
... bigger load with every bite

Plug-welding design makes possible a lighter weight dipper. Plugs in one casting fit in sockets in overlapping casting forming groove for weld deposit—gives strength with minimum use of welding material . . . permits interlocking design that reduces total weight . . . eliminates need for heavily reinforced sections.

Use all available shovel power to move a bigger load with every bite.

FASTER DIGGING
... greater yardage in every shift

Plug-welding eliminates jutting weld shoulders that resist penetration, loading, and dumping . . . contoured lip and easily-replaced teeth give clean bite for faster digging. Surface of manganese steel work-hardens under impact—takes on a "plow-share" polish that combats abrasion . . . offers minimum frictional resistance in loading and dumping. Flared body tapers out to door for faster unloading—material can't bridge.

GREATER STRENGTH
... no lost time for breakdowns

Plug-welding provides maximum strength as well as minimum weight.

Austenitic Manganese Steel is used throughout—further assurance of maximum durability and service life. Impact work-hardens the surface of "The Toughest Steel Known" to as high as 550 Brinell while body metal retains its basic toughness.

CAPACITIES ½ YARDS AND UP ———— SEND FOR INFORMATION

AMERICAN
Brake Shoe
COMPANY

AMERICAN MANGANESE STEEL DIVISION
CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo.
Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.

NOW "VENTUBE" IS MADE WITH NEOPRENE

Tough, durable neoprene coating makes flexible ventilating duct even better than prewar type!

- LIGHTER IN WEIGHT
- MORE FLEXIBILITY
- EASIER TO COUPLE
- STANDS UP TO ACID
- RESISTS HEAT, AGING

Most construction men know that neoprene, the Du Pont synthetic rubber, is tough and durable, giving unusual service in cable jacketing and other tunneling equipment. Now, you'll be glad to know "Ventube" ventilating duct is made with neoprene. The "Ventube" fabric is thoroughly impregnated with a neoprene composition engineered to give long life and trouble-free service.

Many advantages of the new material: (1) Much more flexible for carrying air around curves or corners, for coupling and uncoupling; (2) Much lighter in weight, for lifting and carrying long lengths; (3) Neoprene is long-lasting, withstands corrosive acid or alkali waters, resists oxidation from heat and aging. Not only better than wartime types, but even better than prewar "Ventube."

And remember that "Ventube," when attached to a motor-driven blower fan of adequate capacity, brings fresh air to men at work, clears the face quickly, reduces down-time after blasting, speeds production. Easy to install, to move, to store. Low in both original and upkeep cost.

For further details, consult Du Pont Technical Service, Fabrics Div., E. I. du Pont de Nemours & Co. (Inc.), Fairfield, Conn.

*"VENTUBE" is Du Pont's registered trade mark for its flexible, synthetic-rubberized ventilating duct.



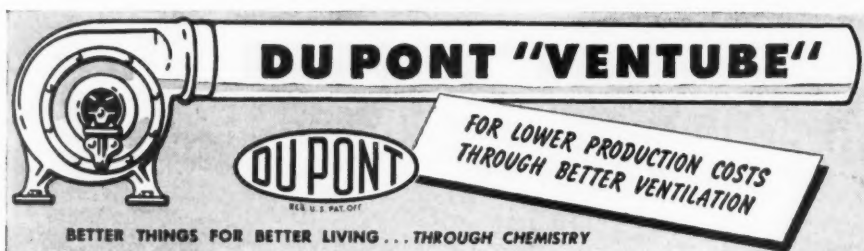
"Ventube" made with neoprene is much lighter in weight, making it easy to store and handle.



The new-type "Ventube" is much more flexible for carrying around curves or corners, for quick coupling and uncoupling of sections.



Durable "Ventube" carries work-speeding air to the job, at remarkably low cost to you.



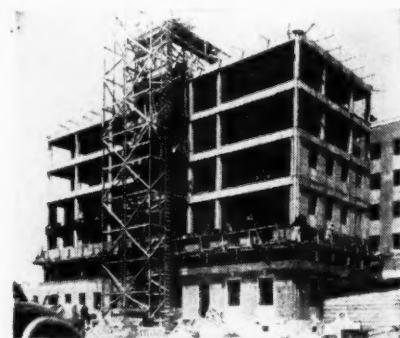
(Continued from page 138)



are fed into starter, making quick starts possible. Completely self-contained, generator can be carried to any truck on construction machinery. Designed to bring battery voltage to maximum operating efficiency in minimum time, it can be used for quick charging as well as booster service. Generators are available in sizes to fit all types of applications.—Homelite Corporation, Port Chester, N. Y.

WATERPROOFING — Transparent wall seal waterproofs with one coat applied to any outside wall above grade. It does not require constant stirring.—Missouri Damp & Waterproofing Co., P. O. Box 2717, St. Louis 4, Mo.

SCAFFOLD EQUIPMENT—Scaffold equipment designed to save time is available in several models. Model B, 5 ft. 8 in. wide, with raised material platform, keeps materials at mechanic's fingertips instead of at his feet. This feature and removal of cable and drums behind him away



from wall save much time. Model A, 8 ft. 4 in. wide, is wide enough to transport materials along outside edge instead of being loaded from inside. Model C, light cleaning and tuckpointing type, may be hung from any height structure, with effort of raising being same from bottom to top.—Superior Scaffold Sales Co., Waterloo, Iowa.

THE HOUGH "HUFF" Payloader

PAYS OFF IN.....

Speed!
Capacity!
Mobility!



The Model HL 1 yd. Payloader was designed from the tires up for fast, efficient excavation and loading. Built big and powerful, yet fast and maneuverable, to the job and on the job, the Model HL will turn out big yardage at a minimum of operating and maintenance expense.

Handles earth excavation, sand, gravel, aggregate, snow, or any other bulk material; pulls blade graders; loads spoil; used for street and highway construction or maintenance — on any job, a Payloader will cut costs sharply. Crane and Bulldozer attachments extend its use and versatility.

Hough Payloaders are the result of over 25 years of material handling engineering experience and are backed by a world wide distributor organization. Send today for new catalogs on the 1 yd. gasoline or Diesel Model HL; or the 10½ cu. ft. Model HA.

OVER 6500 NOW SERVING INDUSTRY THE WORLD OVER



Long, high dumping reach
for loading trucks.

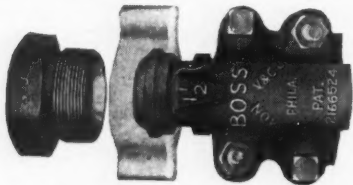
Readily convertible for
bulldozer service.



THE FRANK G. HOUGH CO.
MATERIAL HANDLING EQUIPMENT SINCE 1920
706 SUNNYSIDE AVENUE LIBERTYVILLE, ILLINOIS

These Four "BOSS" Couplings Help Cut Costs Three Ways

First, they are DIXON quality . . . your assurance of long service life and minimum replacements. Second, they are correctly designed to hold tight, eliminating job delays due to faulty hose connections. Third, they are "easy on the hose"—no cut-backs because of damage to hose ends.



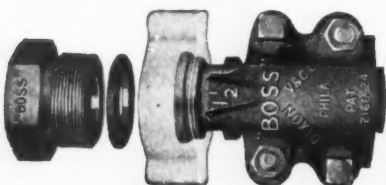
"G J-BOSS"
Ground Joint, Style X-34
FEMALE HOSE COUPLING

A washerless coupling, providing maximum convenience and efficiency on high or low pressure steam, water, air and hydraulic hose. Strong malleable iron "Boss" Offset and Interlocking Clamp exerts powerful, full-circumference grip on the hose, without pinching. No danger of blow-offs. Large Wing Nut facilitates connecting and disconnecting. Sizes 1/4" to 6". Cadmium plated—rustproof.



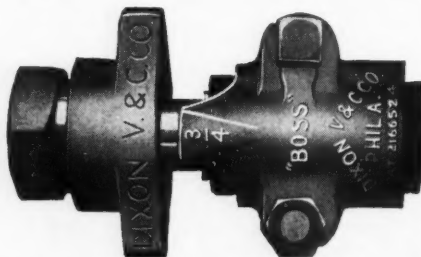
"BOSS" MALE COUPLING
Style MX-16

Strongest and most dependable of its type for all high or low pressure services. Designed as companion coupling to "G J-Boss" and "Boss" Female Couplings, and also used in place of regular iron pipe nipples because it does not require over-size or enlarged-end hose. Furnished with efficient "Boss" Offset and Interlocking Clamp. Sizes 1/4" to 6". Cadmium plated—rustproof.



"BOSS"
Washer Type, Style W-16
FEMALE HOSE COUPLING

The most widely used washer type hose coupling, providing the ultimate in reliability and safety on steam, air, water and nearly all other fluids and gases. Has same "Boss" Offset and Interlocking Clamp as other "Boss" Couplings described above—proof against leaks, blow-offs and damage to hose ends. Sizes 1/4" to 6". Cadmium plated—rustproof.



"G J-BOSS" Ground Joint
AIR HAMMER COUPLING

Built for heaviest duty and hardest wear, with maximum convenience and efficiency. No worn or mislaid washers to replace. Furnished with strong "Boss" Interlocking Clamps for assurance against pressure losses and blow-offs. Compact and Heavy Types. Cadmium plated—rustproof. For washer style of otherwise identical design, specify "Boss" Washer Type Air Hammer Couplings.

Sold by Manufacturers and Jobbers of Mechanical Rubber Goods.

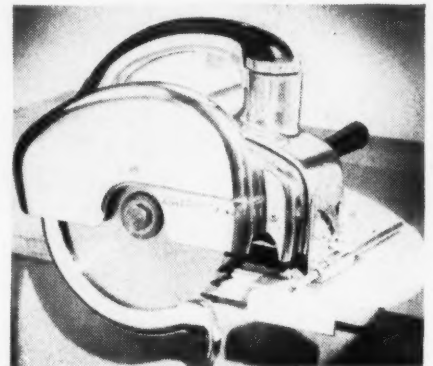
IF IT'S A  PRODUCT
IT'S DEPENDABLE

DIXON

VALVE & COUPLING CO.

Main Office and Factory: PHILADELPHIA, PA.
BRANCHES: CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON

PORTABLE POWER SAW—New portable electric saw has been engineered to save job time, perform with greater ease and less fatigue for operator, and handle numerous jobs in construction, shipping and maintenance where wood, mortar, roofing, wall board and other materials are to be cut. Special General Electric motor develops 1½ hp. with direct power gear drive to 8-in. blade. This provides 50 percent greater maximum horsepower for 8-in. saw without increase in weight. Free



running speed of 6,500 rpm., backed by ample power, maintains cutting efficiency in all types of operating conditions. Balance torque design makes saw start smooth without jerk or jar. Among other features is elevating mechanism employing 20-deg. Acme triple thread screw for faster, accurate positive adjustment of depth of cut. Ground aluminum bronze threads on elevator screw are made in No. 18 Ampco bronze, which is extremely tough and long wearing. Blade will make 2 7/8-in. straight cut and will saw 2-in. plank with 45-deg. angle cut. Designed for one-hand operation, it has convenient plastic auxiliary handle that can be used on vertical cuts and to pull saw through at end of cut. Operating handle is always parallel to plane being cut.—**American Floor Surfacing Machine Co., Toledo, Ohio.**

ROCK SALT SPREADER—Inexpensive, easy-to-make rock salt spreader has been developed, detailed plans for which are included in pamphlet which may be obtained free of charge from company. Designed to provide controlled spread of rock salt for snow and ice removal, it is so made that it hooks over tail gate of any truck and it may be instantly attached, removed or changed from one truck to another without alterations, use of bolts or other holding devices. Sterling rock salt shaker consists of metal trough with capacity of 250 lb. of rock salt and adjustable holes in bottom, regulating handle to control rate of flow and hangers to fit over tail gate of truck. If rock salt is shoveled into
(Continued on page 145)

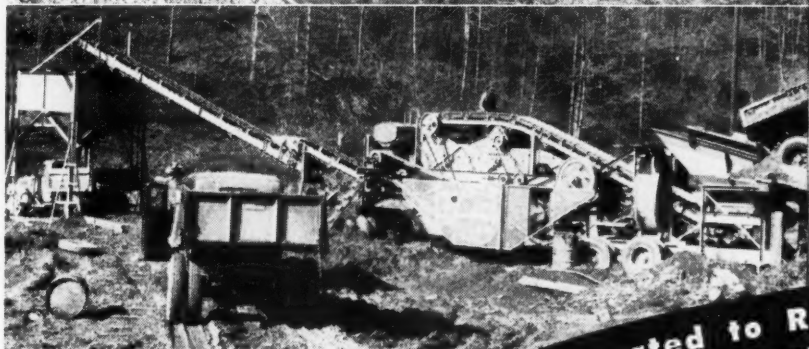
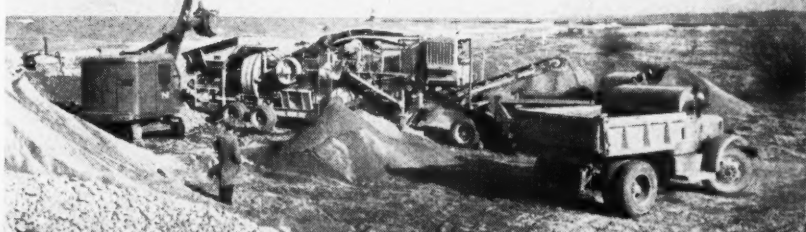


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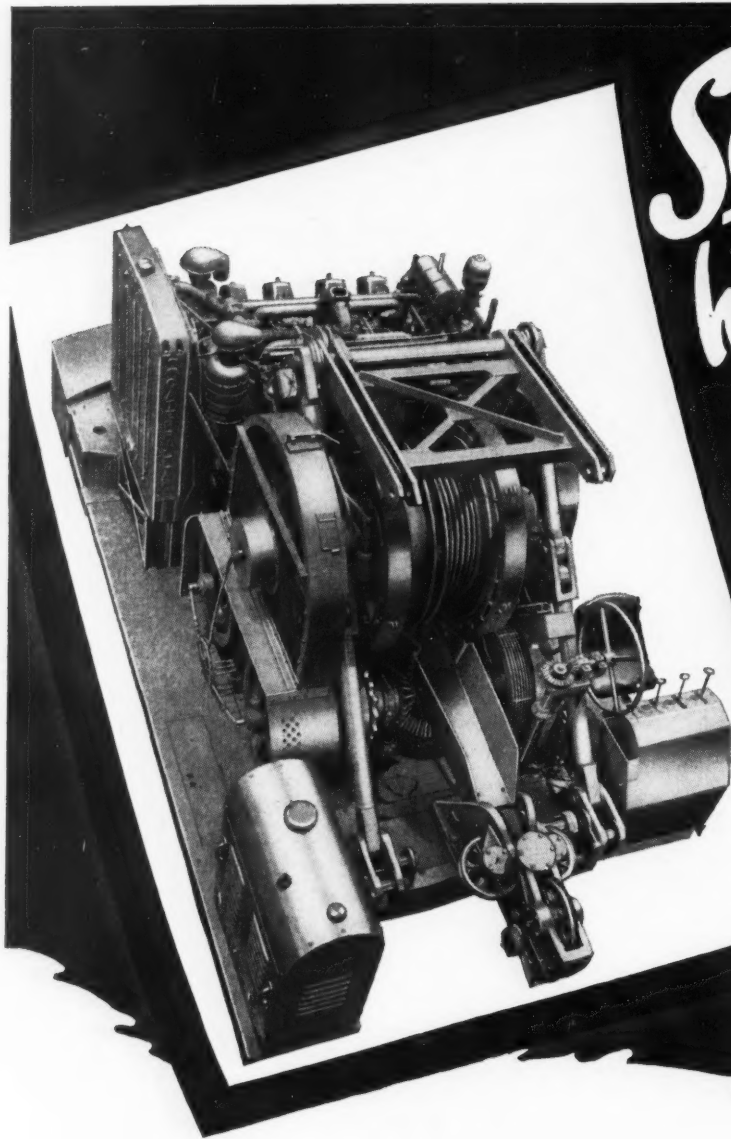
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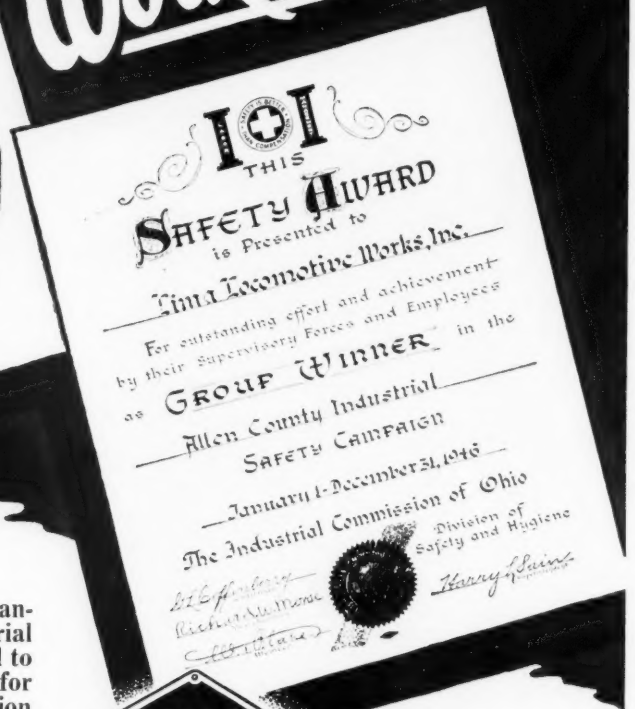
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OUR TEACHERS—

They Need The Help Of Business Now

THIS is an appeal to raise school teachers salaries—fast. Such appeals are commonly addressed, rather vaguely, to the conscience of the community. This one is not. It is addressed directly to the business community, and to its hard core of common sense.

As a whole, the school teachers of the nation are taking an economic beating. So, too, are their close associates and co-workers, the librarians. In purchasing power, public school teachers salaries, after taxes, average about 20 percent less than they did eight years ago. Beginning salaries of librarians, always low, have fallen behind an equal amount in purchasing power. College and university teachers are not much better off. The pressure is particularly heavy on those in the lower ranks. As a group, teachers and librarians are close to the bottom of the economic heap.

Unless this situation is remedied promptly, it is confidently to be expected that:

1. The more competent teachers will continue to desert our schools in droves, and our libraries will remain inadequately staffed. More than 350,000 teachers — many of them the very able ones — have left the public school teaching staff of about 900,000 in the last six years. More than 100,000 of the replacements are "sub-standard." They cannot meet the minimum educational requirements of their jobs which, by admission of the profession itself, are none too high.

2. Those who remain will be organized increasingly into economic pressure groups. Teachers strikes and the rapid growth of unionism among teachers at present clearly indicate what is in store.

Many business men are so deeply disturbed by the resort to the strike weapon by some teachers to enforce their salary demands that their sympathy

for the general plight of our teachers tends to be dulled. Such an attitude is understandable. It avails nothing, however, in eliminating the crisis in education caused largely by teachers salary troubles.

The crisis in education is a crisis for the nation as a whole. The work of our schools, colleges and libraries is such that its deterioration means deterioration of the nation. However, the salary crisis in education is in special measure a crisis for the business community. That community has a special stake in having a well-educated and well-disposed constituency.

Education and Unionism

There may be room for disagreement as to whether teachers should organize themselves in trade unions, and follow trade union tactics. However, there is no conceivable room for disagreement as to whether organization of teachers into a fighting economic pressure group under the lash of a teachers salary crisis would be a body blow to business. Among many teachers it would foster an abiding hostility to the institution of business which, occupying a key position in the life of the community, had not done its utmost to make such unionization unnecessary by taking a lead in relieving the teachers salary crisis.

In our work of publishing technical periodicals and text books, we at McGraw-Hill meet and come to know many teachers and librarians. We know that, as a group, they have little appetite for participation in militant economic pressure groups. They are far more interested in making a militant assault on ignorance and prejudice through concentration on their professional work. If, through neglect of their economic needs by the business community, they feel forced to resort to trade union organization and tactics, the teachers and librarians can be expected to have an abiding re-

sentment toward the institution of business. That resentment will, in turn, be communicated in no small measure to the coming generation. Such is the nature of the educational process.

The crisis in education is not, of course, exclusively a matter of salaries. Unsatisfactory working conditions also play a part. Many schools are dilapidated and terribly overcrowded. So are some libraries. Some small-town school boards oppressively insist that the school teachers be the paragons of piety the board members wish they were themselves. Protection of a proper degree of academic freedom is sometimes missing. The teacher is rarely accorded a prestige comparable to the importance of the job. Elements such as these aggravate the crisis in education. But the first and absolutely essential step toward surmounting the crisis is to provide tolerable salaries.

Because of the enormous diversity of local conditions affecting teachers and librarians salaries, no general rule for emergency action would fit all cases. From state to state, average yearly expenditures on education in 1940 varied all the way from about \$30 per pupil to about \$150. Some states, like Nebraska, finance their schools almost exclusively from local taxes. Others, like Delaware, rely almost entirely on state taxes. Some states and communities have already acted to meet the salary crisis. Others have not. Variations such as these limit any generalization.

Guide for Emergency Action

But as a general proposition it can be safely said that the minimum requirements of the emergency will not have been met so long as the salaries of class room teachers and junior members of college faculties and library staffs have not been increased by the amount necessary to keep them abreast of the increase of about 50 percent in the cost of living since 1939. In many cases, a temporary cost of living adjustment might prove the best way to handle the problem.

This suggestion, let it be repeated, is not offered as a solution of the salary problem, but as a start. With their salaries increased enough to meet the increased cost of living, the teaching and library groups as a whole would still have cause to envy the current economic position of industrial workers. Since 1939, the average of weekly earnings of indus-

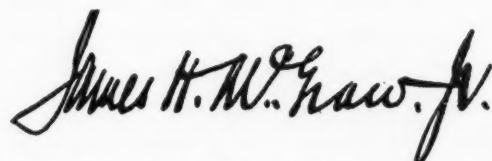
trial workers after taxes, has outstripped the rise in the cost of living by about 21 percent.

However, a start and an absolutely essential start would be made toward giving America the sort of educational system it must have not only to fulfill its ideals but holds its own in this highly competitive world. We worry, and I think rightly, about having the free world engulfed by Russian Communism. According to the best figures available, the U.S.S.R. is spending about twice as large a share of its total national income for education as we are. The figures compared include our expenditures for both public and private education. That comparison is really something to worry about.

States Should Take Lead

In dealing with the salary crisis it is up to the teachers to display a maturity and integrity worthy of their profession. Teachers have many employment advantages, such as long vacations. They should not slur them over in making comparisons of their annual incomes. Also employment in teaching and libraries has been notably stable. Teachers and librarians should not ignore that fact in comparing their position with those whose employment has been far less steady.

At the same time, the great fiscal difficulties involved in solving the crisis in teachers and librarians salaries must not be used as an excuse for postponing effective action. The states are better equipped financially and otherwise to take such action than is the federal government and, with the localities directly involved, should take the lead. If the price of effective action is a heavier tax burden for communities already too heavily burdened that price must be paid. The crisis presents a major emergency. To handle it as anything less is to court irreparable damage to the nation as a whole, and a special measure of damage to business as well. The intelligent self-interest of business requires that it leave nothing undone to meet and master the crisis in education.



President McGraw-Hill Publishing Company, Inc.

(Continued from page 142)



trough instead of dumped in from bags, back and sides should be built up higher than front to avoid spilling when salt is thrown from shovel. Shaker is hung as far as possible to left side of gate, so that it overhangs center line of road and distributes rock salt equally on both sides of line. Set to one-half maximum capacity of openings, it applies rock salt at rate of 300 to 400 lb. per mi. of 20 ft. pavement at truck speed of approximately 15 mph.—International Salt Co., Inc., Scranton, Pa.



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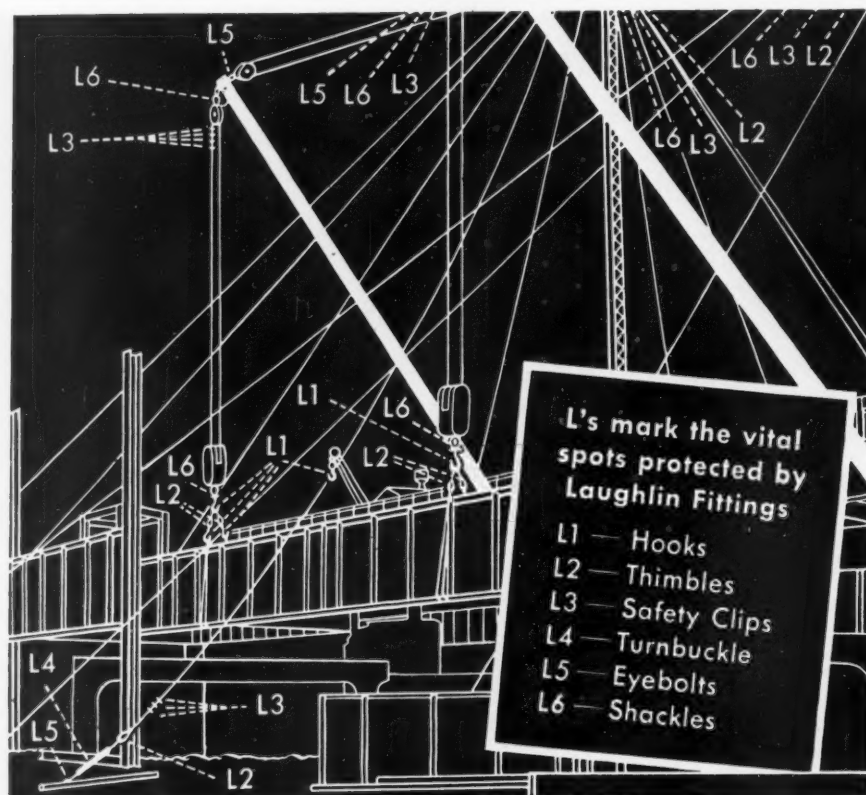
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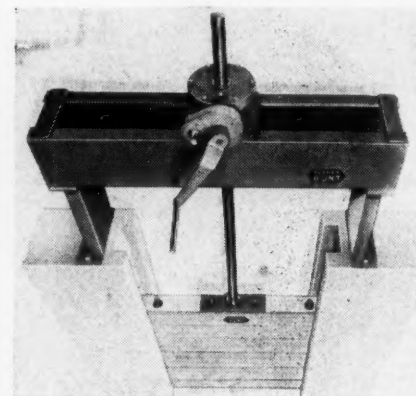
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tric operation. Bench stands of many capacities lend themselves to ready installation on any of these units. Wood gates are designed for thrust loads imposed.—**Water Controlling Apparatus Division, Rodney Hunt Machine Co., Orange, Mass.**

COMPACT BOILER — Pacific steel boiler is compact unit that is readily disassembled into base, firebox and shell, all of which can enter building in sections and be reassembled on job without welding. Reassembled boiler maintains shop and boiler insurance inspection standards. Elimination of further welding makes second inspection unnecessary. One of these boilers of 6,000-sq. ft. capacity will pass through space 46 $\frac{1}{4}$ x 34 $\frac{1}{2}$ in., or through ordinary 3x7-ft. door. Side and rear connections give positive circulation between shell and the firebox. As water heats, it rises through side connections with nozzle action, tending to wash air bubbles from tubes of boiler and circulation is completed through rear circulation connection.—**Pacific Steel Boiler Division, United States Radiator Corp., Detroit, Mich.**

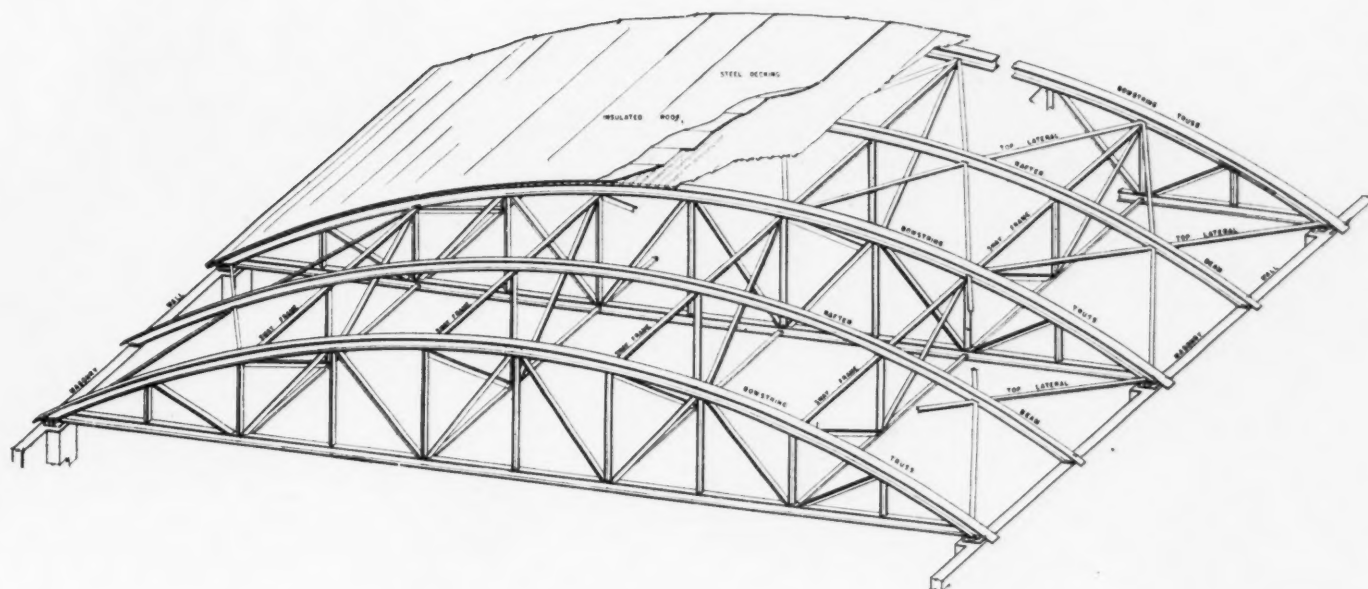
MOBILE CRANE — Krane Kar, mobile power swinging boom rubber-tired crane, can be used inside plants and outdoors. Because it is equipped with large traction and steering wheels, it is capable of negotiating average outdoor roadways around plants and yards and at same time, because of its compact overall width, height and length dimensions, it can be used with equal efficiency inside of plant. Operator has easy access to controls for hoisting, swinging and topping crane and also for traveling forward and reverse. One engine provides power for

(Continued on page 148)

Welded Bow String Roof Truss is Economical and Efficient

By Ned L. Ashton

Consulting Engineer, Iowa City, Iowa



THE arc welded bow string roof truss shown above is intended for a 72-foot clear span roof supported on masonry walls, used in combination with an insulated steel deck. This type roof is ideal for large store buildings, hangars, garages, small factories, display rooms, etc.

The bow string truss is economical—uses only 4.4 lbs. of steel per square foot of area for the truss shown—and provides wide entrance-exit openings at ends of the building.

The truss consists of curved 6"-wide flanged top chord sections, 6" light beam section bottom chords and 3" x 4" T section web members joined by electric arc welding. Trusses are spaced at 18'-0" centers and span 72'-0". Curvature radius of the top chord is 72', same as span length. Trusses are 9'-7 $\frac{3}{4}$ " deep, center to center of chords, at the middle.

MINIMIZES STRESSES

Truss weight is estimated at 3200 lbs. per truss or 45 lbs. per foot of one truss. The dead load from roofing

materials is slightly less than 12 lbs. per square foot. An analysis of the dead load web stresses reveals that they are very small. In fact, the truss is designed so that, under the dead load or a uniform snow load covering the whole span, there is no beam action of the top chord, the stress in every diagonal is zero and the stress is constant throughout the bottom chord. Under half live load conditions, the stresses in the web members alternate between tension and compression going from one member to the next along the truss. Both the chord and web stresses are reversible under varying wind conditions—the same member acting either in tension or compression depending on which way the wind is blowing.

RAFTERS AUGMENT TRUSSES

In addition to the bow string trusses, the roof decking gets support from light intermediate-curved 6" joist section rafter beams. These make the truss spacing independent of the purlin span. In longer spans,

2, 3 or more of these intermediate rafters should be used between trusses for economy.

Rafters are 5-span continuous beams supported at intervals of 14'-4 $\frac{3}{4}$ " by the longitudinal sway frame trusses, and supported transversely by the top lateral bracing. In turn, the rafters cut down the unsupported length of the laterals.

REQUIRES LITTLE FIELD WELDING

Both the 72-foot trusses and the sway frames are designed to be completely fabricated in the shop. Field erection welding is confined to joining the sway frames, rafter beams, top laterals and roof decking.

A detailed study of this roof and the bow string type truss is made in a new series of Plates of "Studies in Structural Arc Welding," published by Lincoln Electric. To be placed on the mailing list for these and future Studies, write THE LINCOLN ELECTRIC COMPANY, Dept. 292, Cleveland 1, Ohio.

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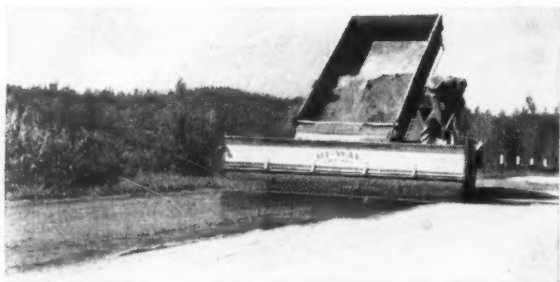
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(Continued from page 146)



crane mechanism and for traveling. Chassis is fitted with either gasoline or diesel engine and otherwise equipped with electric lighting and starting equipment. Unit can negotiate grades up to 15 percent under load. It is available with electric magnets or clamshell buckets in three standard sizes, 5,000-lb. capacity, 10,000-lb. capacity, and 20,000-lb. capacity. — **Silent Hoist Winch & Crane Co., 841-877 63rd St., Brooklyn, N. Y.**

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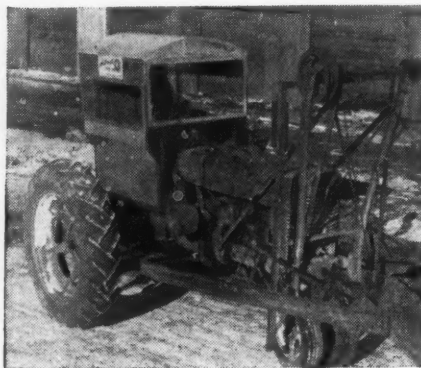


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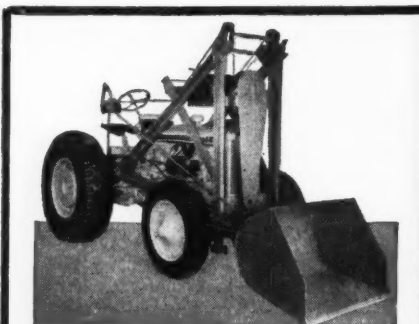
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MISSOURI—KANSAS CITY: American Body & Equipment Co., 1411 Charlotte St. ST. LOUIS: Truck Equipment Co., 511 N. Channing Ave.

MONTANA—BILLINGS: Western Construction Equip. Co., 505 N. 24th St. MISSOULA: Western Construction Equip. Co., 218 W. Pine St.

NEBRASKA—LINCOLN: Highway Equip. & Supply Co., 21st & N Sts. SCOTTSBLUFF: Colorado Builders Supply Co., 602 W. 27th St.

NEW MEXICO—ALBUQUERQUE: The Harry Cornelius Co., 1510 N. Second St.

NEW YORK—BUFFALO: Truckstell-Wilcox, Inc., 224 W. Ullica St. TARRYTOWN: Hercules-Campbell Body Co., Inc. WATERLOO: Hercules-Campbell Body Co.

NORTH CAROLINA—RALEIGH: J. B. Hunt & Sons, 323-25 W. Martin St. SPRUCE PINE: Mitchell Distributing Co.

NORTH DAKOTA—ST. PAUL, MINN.: General Truck & Equip. Co., 2535 University Ave.

OHIO—CANTON: Ewing Brothers, 929-41 Cleveland Ave., N. W. CINCINNATI: The Bode-Finn Company, 2650 Spring Grove Ave. CLEVELAND: The Trailmobile Co., 1223 Walnut St. LEBANON, M. A. Brightbill Body Works, E. Cumberland St., at 7th Ave. PHILADELPHIA: Eastern Body Co., 31st & Fletcher Sts. PITTSBURGH: Hercules-Pittsburgh Body Co., 1717 Mary St., S. S.

SOUTH CAROLINA—COLUMBIA: South Carolina Equipment Co., P. O. Box 295.

SOUTH DAKOTA—ST. PAUL, MINN.: General Truck & Equip. Co., 2535 University Ave.

TENNESSEE—CHATTANOOGA: Ted Nelson Service & CHR Alignment Co., 416-18 Market St. KNOXVILLE: Knoxville Structural Steel Co., P. O. Box 1512. MEMPHIS: Dealers Truckstell Sales, Inc., 365 S. Parkway, Holliburn & Lane Co., 5th Ave., at McGavock.

TEXAS—DALLAS: Truck Equipment Co., 2409-11 Commerce. FORT WORTH: Truck Equip. Co. HOUSTON: McArthur Welding & Press Co., 5525 Clinton Dr. SAN ANTONIO: Patten Machinery Co., 1318 N. Alamo St. CORPUS CHRISTI: Truck Equip. Co., 1501 Port Ave.

UTAH—SALT LAKE CITY: Hercules Body Sales Co.

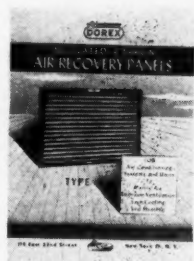
VIRGINIA—NORFOLK: A. S. Drumwright & Co., 1921 Brambleton Ave. RICHMOND: Crenshaw Equipment Co., Inc., 304 E. Main St.

WASHINGTON—SEATTLE: Allied Trailer & Equip. Co., 1331 Third Ave.

WEST VIRGINIA—BLUEFIELD: Truck Equip. Engineering Co., P. O. Box 387. CHARLESTON: West Virginia Tractor & Equip. Co., P. O. Box 473. CLARKSBURG: West Virginia Tractor & Equip. Co., 100 Wood St. HUNTINGTON: Huntington Truck Equip. Co., 919 Sixth Ave.

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use



AIR RECOVERY — (20-p. bulletin) Contains complete data on design, construction, function and application of Dorex activated carbon air recovery panels. Perform-

ance chart provides all data necessary for proper panel selections.—**W. B. Connor Engineering Corp.**, 114 E. 32nd St., New York 16, N. Y.

MODERN STRUCTURES — "Airports," "Field Houses," "Utility Hangars," "Standard Building A-40." — (Pamphlets and sheets) Describe and illustrate firm's latest structural designs and specifications. — **Luria Engineering Corp.**, New York and Chicago.

INDUCTION MOTORS — (Die-cut 4-p. folder) Shows cutaway views and details of construction of new E-M heavy-duty squirrel-cage induction motors designed for drip- and splash-proof construction in large-power ratings from 100 to 1,000 hp., 1,800 rpm. and lower.—**Electric Machinery Mfg. Co.**, Minneapolis 13, Minn.

LEARN ARC WELDING — (24-p. pictorial booklet) Explains functions and courses of study pursued at Hobart Trade School. Hobart Arc Welding News with many interesting photographs and articles on welding is also available free of charge.—**Hobart Brothers Co.**, Troy 1, Ohio.

LUMBER DESIGNS—(1947 edition) Gives typical lumber designs with quantities and materials lists for light and heavy frame structures. Designs employ Teco connector system of construction and are offered as guides in designing for specific jobs.—**The Timber Engineering Co.**, 1319 18th St., N. W., Washington 6,

STRIP-EASE!



Only well-built equipment stands up under the weight and impact of a load dropped by a dragline. This Hercules is one of a fleet operating in a Pennsylvania strip mine.

You'll go a long way to find a hauling and dumping job as tough as that in the average strip mine operation . . . and you'll go just as far to find equipment as well fitted for this rugged service as Hercules Dump Bodies and Hydraulic Hoists. There's a combination that's built for business. If you've got a hauling and dumping job that's too much for ordinary equipment, you'll want to know all about Hercules heavy-duty bodies and hoists.

Hercules equipment is designed for the job. This 6-yard capacity unit has special cab protector and is equipped with a Hercules 8X Hydraulic Hoist.



Check the list opposite for name of Hercules distributor nearest you.

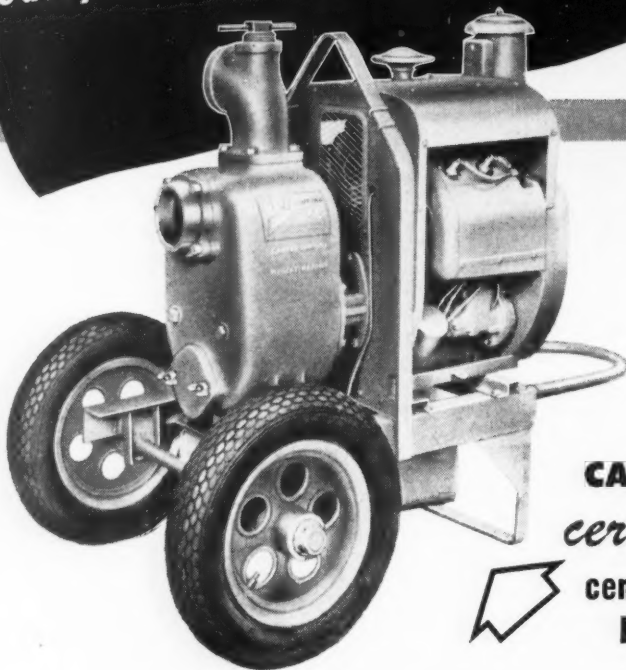


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HERCULES STEEL PRODUCTS CORP. • GALION, OHIO

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CARVER PUMPS**
really deliver when jobs are tough



CARVER
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If you want a pump that primes lightning fast, that handles oceans of water at exceptionally high efficiency, and stands up easily under toughest operating conditions . . . the pump you want is a CARVER Certified Centrifugal Pump.

In every way they'll give you better pumping performance on the tough jobs—and the easy ones—because their modern streamlined design and construction gives you all these outstanding advantages:

- ★ High Capacity at high suction lift.
- ★ High Efficiency at high pressures and at slow speeds.
- ★ Non-Recirculating—no priming gadgets.
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- ★ Non-Clogging—streamlined design.
- ★ Performance of each pump is *certified*.

Capacities from 3000 to 200,000 G.P.H. Sizes 1½" to 10". Ask for Bulletin 100. Carver Pump Co., Muscatine, Iowa.

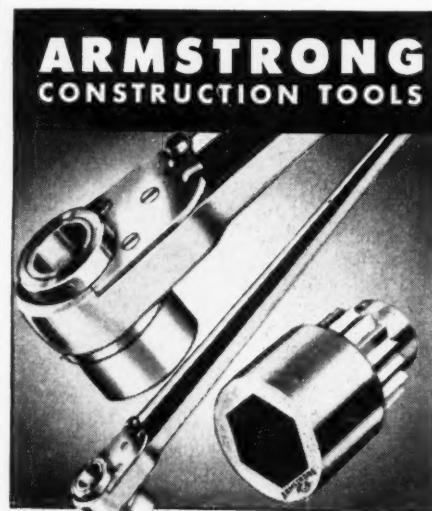
**CARVER
PUMPS** *Muscatine
Iowa*

FLOORING—Stresses reduction of floor maintenance costs by major companies through the use of Emeri-Crete flooring and gives test data on installations discussed. Included is list of industries, ranging from aircraft to textile, where Emeri-Crete has solved difficult flooring problems.—**Walter Maguire Co., Inc.**, 330 W. 42nd St., New York 18, N. Y.

TRACTOR—(32-p. catalog) Covers features of diesel D7 tractor. Photographs and specifications are included.—**Caterpillar Tractor Co.**, Peoria 8, Ill.

COUPLINGS—(16-p. bulletin) Gives detailed illustrations and descriptions of new Type F Steelflex couplings, and provides complete, simplified selection tables for both motor and turbine applications.—**Falk Corp.**, 3001 W. Canal St., Milwaukee 8, Wis.

AIR TOOLS FOR CONTRACTORS—(24-p., 2-color bulletin) Shows air tools in action and demonstrates their versatility.—**Ingersoll-Rand Co.**, 11 Broadway, New York 4, N. Y.



**ARMSTRONG
DROP FORGED
CONSTRUCTION RATCHETS**

The ARMSTRONG Reversible Ratchet Construction Wrenches are made of steel thruout—the Ratchets are drop forged, the Nut Socket machined from special analysis bar steel. All parts except the handle are hardened. The spindle of the Ratchet is of "wide open" design—permits bolt to pass thru the Ratchet so that nuts can be run any distance along bolt and securely set with one setting. 24" or 36" Ratchets take square or hexagonal sockets for nuts of from 1" to 2½" dia. or 1½" to 3½" dia., respectively.

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What makes this drill steel "THE OLD RELIABLE" ?

Good performance, sure! But what makes Bethlehem Hollow a good performer?

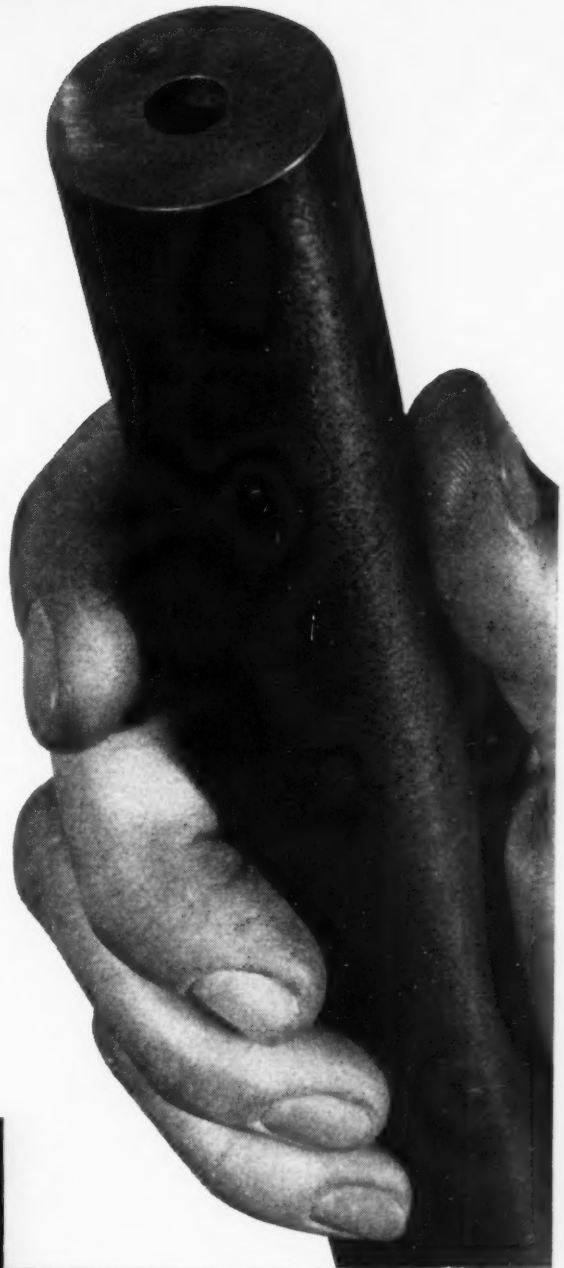
It's a combination of things—heads-up work on the manufacturing end . . . the "savvy" that comes from on-the-job research . . . the finest materials available . . . plus half a lifetime's experience in the making of good drill steel.

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BETHLEHEM HOLLOW DRILL STEEL



All these features with Bethlehem Hollow:

- Uniform size; easier make-up
- Wide quenching range; fewer heat-treating problems
- Round, smooth, well-centered hole
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Use it for threaded rods or forged-on bits.
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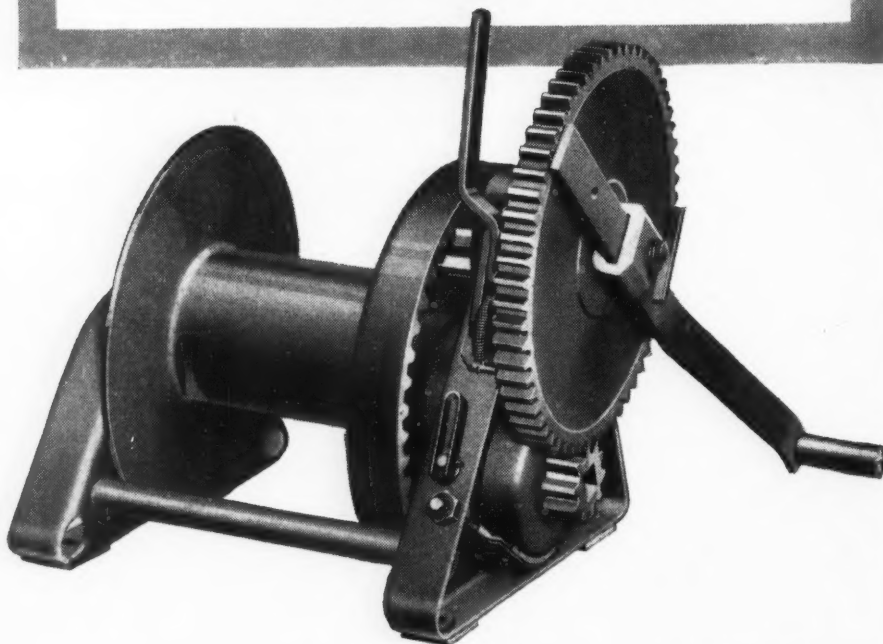
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. . . unload this heavy,
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. . . and place it in a
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MARINE DECK MACHINERY • CAR PULLERS • PILE DRIVERS • REVOLVER CRANES • CROSBY CLIPS

BALL BEARINGS—(20-p. bulletin) Gives pertinent engineering information covering pillow blocks, hanger bearings, flanged units, take-up units, cylindrical units, and steel frame ball bearing take-ups. Selection tables provide convenient means of selecting right bearing for any application within size and load range of line.—**Dodge Mfg. Corp., Mishawaka, Ind.**

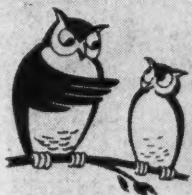
JACKS—(4-p. folder) Describes in detail various construction uses of Util-A-Tool. It lists wide selection of push-and-pull jacks and steamboat ratchet pulling jacks. Specification charts and price listings are included.—**Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.**

PNEUMATIC CONCRETE CONSTRUCTION—New bulletin on Presscrete describes pressure injection method of placing concrete for general use and for foundation piles. Concrete mix is conveyed by air pressure through hose and pipe lines to desired location. Particularly adapted to cramped quarters and subaqueous or subterranean work. For piling, steel casing is sunk into ground, earth within it is removed and replaced by concrete forced by air pressure from bottom of vertical injection pipe. As level of concrete forming pile rises, casing and injection pipe are gradually withdrawn.—**Presscrete Co., Graybar Bldg., New York 17, N. Y.**

CRUSHING EQUIPMENT — (16-p. bulletin) Covers entire line of crushing, pulverizing, conveyor, screening and washing equipment, including portable plants and basic units, and pictures typical installations, together with flow of material diagrams.—**Universal Engineering Corp., 625 C Ave., N.W., Cedar Rapids, Iowa.**

WINDOW EQUIPMENT—(4-p. bulletin) Describes Dura-seal metal weatherstrip sash balance window equipment.—**Zegers, Inc., 5619 Harper Ave., Chicago 37, Ill.**

MOTOR GRADER — (Illustrated folder) Outlines construction attributes and operational advantages of new diesel No. 212 machine. It includes basic specification figures, outlines tandem or single drive faculties of product, leaning front wheels, wide variety of blade positions offered, extreme positions possible by adjustment, and attachments available to users.—**Caterpillar Tractor Co., Peoria 8, Ill.**



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THAT'S RIGHT . . . for a truck that will save you money, get a "Job-Rated" truck.

A "Job-Rated" truck is a truck that **FITS** your job—a truck in which every unit is engineered and

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Such a truck is more dependable. It will last longer. It will save money on operating and upkeep costs.

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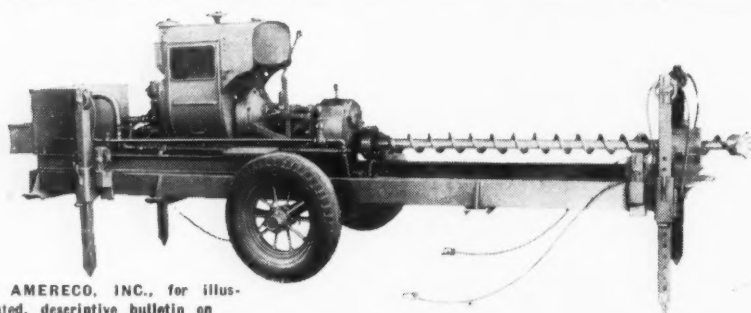
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Use horizontal drilling for best results in shooting—and for fast, economical drilling use HARDSOCC Hydraulic Horizontal Drills. Proof of speed and efficiency—on test a HARDSOCC unit drilled a horizontal hole 174 feet long in one hour and fifteen minutes! Operation is simple, controls are grouped at operators station. Units equipped with Wisconsin 4-cylinder air-cooled engine, clutch, 4-speed transmission, secondary reduction unit, 42' of auger, and 5½" or 6¼" cutterhead.

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• Exclusive features in design and construction make payloads bigger...at lower cost! Weight is balanced, not cumbersome. Extra strength is built into every part with the sturdy welded rolled steel construction pioneered by Wellman, the leader for over fifty years. A type for every service!

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SCREENING AND CRUSHING PLANTS—(4-p. bulletin) Describes new Hammermill units, with pictures and specifications. Two looseleaf sheets give data on Cedarapids portable power units and bin unit. —Iowa Mfg. Co., Cedar Rapids, Ia.

TOOL CATALOG — (96-p. book) Covers laboratory instruments, machine tools, machinists' tools, measuring instruments, optical equipment, and toolroom specialties. — George Scherr Co., Inc., 200 Lafayette St., New York 12, N. Y.

PUMP—(4-p. folder) Outlines in detail advantages of Ellipse rotary pump for hydraulic applications. — Ellipse Corp., 24 S. Clinton St., Chicago 6, Ill.

GUNITE BUILDING CONSTRUCTION — (4-p. folder) Discusses process of constructing stores, theaters, and medium-size buildings with solid reinforced Gunitite. Methods used by company are illustrated in logical steps. —Johnson Western Co., Box 6, San Pedro, Calif.

ACCIDENT PREVENTION FOR INDUSTRIAL OPERATIONS—(544-p. manual) Is intended as handy and authoritative source of accident prevention information for safety directors, safety engineers and foremen. Each of 14 major divisions of book is preceded by summarizing index for quick location of general topics, while 12-p. detailed alphabetical index at back gives access to details. —National Safety Council, 20 N. Wacker Drive, Chicago 6, Ill.

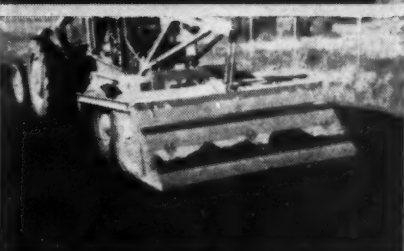
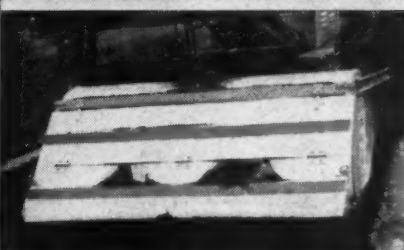
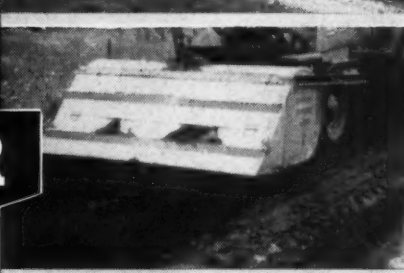
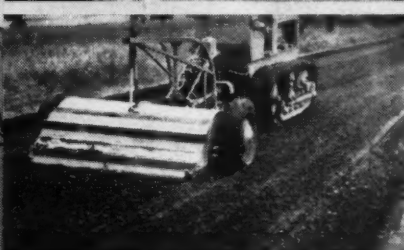
POWER TAKE-OFFS — (Illustrated bulletin) Lists take-off operating principles and gives installation data and complete specifications. —Davey Compressor Co., Kent, Ohio.

RECORDING SPEEDOMETER — (12-p. bulletin) Explains in detail operation of Sangamo Tachograph. It covers such topics as "Driving By Instruments," "Savings In Maintenance," "Accident Prevention," and "Constant Supervision of Vehicles." —Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

STUD WELDING—(36-p. data book and catalog) Describes automatic stud welding process, equipment and studs. —Nelson Sales Corp., Lorain, Ohio.

COMMITTEES THE COUNTRY OVER FIND:

IT'S PLANT MIX QUALITY AT ROAD MIX COST!

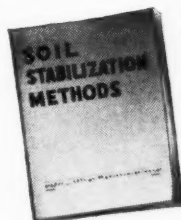


The SEAMAN MIXER

ENGINEERS and CONTRACTORS recognize today that with the SEAMAN MIXER there are no uncertainties and no variables in the mix produced. In thoroughness, in control of voids and in high daily production the work of the SEAMAN meets the strictest specifications; — no better mix can be obtained with any equipment of any type.

But more, the SEAMAN can control certain inescapable conditions that often occur in road construction. For example, if pit run aggregate is used in bituminous construction, frequently the fines are found in one area of the treatment and coarse material in another. By the application of more oil to the fines, — less to the coarse, — two passes of the SEAMAN compensate for the irregularity and prevent "rich" or "lean" spots from appearing. Furthermore, the "carry" of mixed materials within the mixing hood averages the mix and in itself promotes uniformity.

These and many other advantages are SEAMAN characteristics, — all at the low-cost that prevails in road-mix operation.

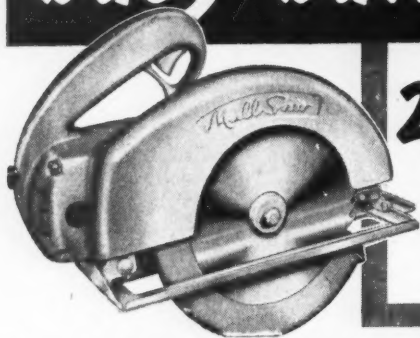


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**2 New ELECTRIC
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Here are two new ways to cut construction costs—the Model 70 and Model 86 MallSaws. Designed for the building field, these new MallSaws have capacities of $2\frac{1}{4}$ " and $2\frac{3}{8}$ ", respectively, on straight cuts in rough or dressed lumber . . . 2" and $2\frac{1}{8}$ ", respectively, on 45 degree angle cuts. They crosscut, rip, bevel cut, dado, groove and multiple cut with speed and accuracy. Special blades equip each saw for grooving asbestos board, tile and concrete and for cutting light gauge metals. Available in 110-volt AC-DC or 220-volt AC-DC.

Ask your Supplier or write Contractors' Equipment Division for literature and prices.

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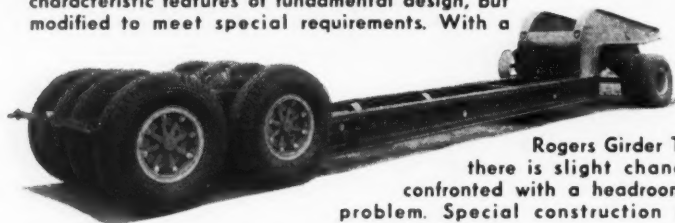
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Rogers Girder Type Trailer
there is slight chance of being
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FABRICATORS DIRECTORY —

Lists names and addresses of 76 companies and shows type of structures they fabricate. Information is also given showing those firms that have facilities for treatment of fabricated lumber with preservatives or fire retardants.—**Timber Engineering Co., 1319 18th St., N. W., Washington 6, D. C.**

SUCTION HOSE — (4-p. folder)

Covers Monarch water suction hose for heavy-duty pumping operations in mining and construction fields.—**Hewitt Rubber Division, Hewitt Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y.**

DIESEL ENGINES—(36-p. maga-

zine) Tells of successful applications of diesel engine in trucking, marine, logging, railroad, petroleum, construction and mining fields.—**Cummins Engine Co., Inc., Columbus, Ind.**

SELF-SUPPORTING CABLE—(52-

p. manual) Contains complete engineering information on recently developed self-supporting cable construction for overhead distribution in utility systems, industrial power services and mining operations.—**Okonite Co., Passaic, N. J.**

PREVENTIVE MAINTENANCE —

(17x22-in. wall chart) Shows at what intervals Super C Turnapull should be serviced and lists points to be checked or adjusted at each servicing. In addition, lubrication points are illustrated by 32 labeled photographs and chart carries recommendations as to what kind of lubricants to use and how often.—**R. G. LeTourneau, Inc., Peoria, Ill.**

RESISTANCE WELDING MANUAL

—(Revised edition, 552 pp.) Twenty new chapters have been added. Tables of recommended procedures have been revised to bring them up-to-date with respect to present-day practice. Numerous additions, based on research and experimental work conducted during war production period, furnish operating data on materials not covered in previous editions. Price is \$3.—**Resistance Welder Manufacturers' Association, 505 Arch St., Philadelphia 6, Pa.**

VALVES—(4-p. bulletin) Describes

and illustrates seven types of valves.—**Golden-Anderson Valve Specialty Co., 1703 Keenan Bldg., Pittsburgh 22, Pa.**

"FREEZING? never heard of it!"

The weather may be cold and damp—but a Gardner-Denver Backfill Tamper goes right on working at top-notch efficiency! There's no tendency of valve or exhaust to freeze. Its piston rod packing retains its seal for months without adjustment or renewal. The double taper fit of the butt and its lock-nut keeps the butt always tight. Here are additional reasons why you'll want to standardize on Gardner-Denver Backfill Tampers for your job.

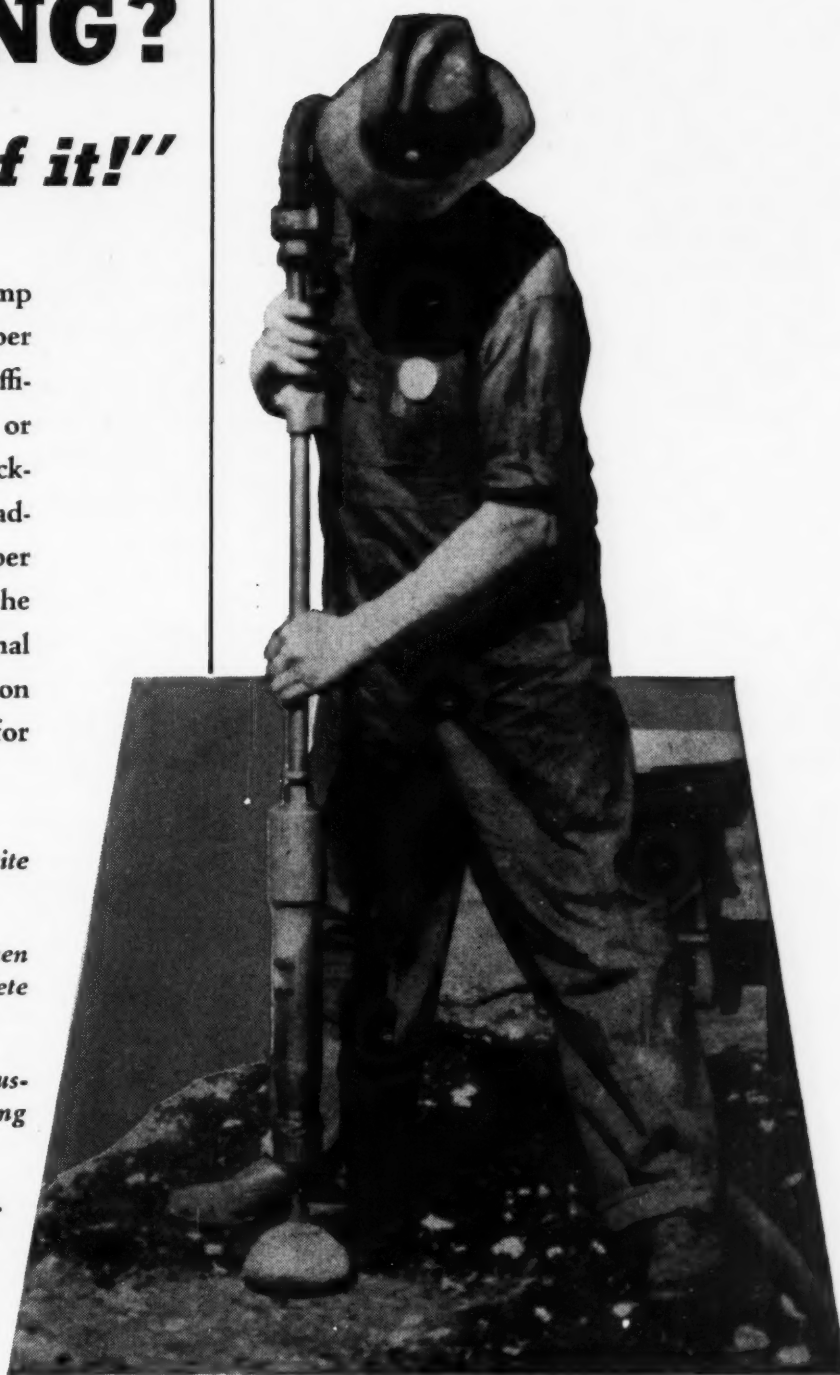
** Easy to walk over the fill—a favorite of operators.*

** Integral oil reservoir feeds only when tamper is in operation—assures complete lubrication of working parts.*

** Low lift end-seating type valve will sustain efficiency of piston action over a long period of time.*

** Piston rod packing and butt attachment conveniently arranged for quick and easy access.*

For complete information, write Gardner-Denver Company, Quincy, Illinois.



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You Save MUSCLE POWER with STERLINGS

It's so easy to wheel heavy loads in Sterling Wheelbarrows, only a minimum of muscle power is required. Sterling's perfectly balanced construction permits 80% of the load to be carried on the wheel . . . only 20% by the operator. This saving in muscle power increases efficiency . . . allows more loads to be hauled daily . . . reduces hauling costs.

Although materials are still scarce, Sterling will make every effort to meet your wheelbarrow requirements just as soon as conditions permit.

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ACCURATE . . . DEPENDABLE . . . ECONOMICAL—Reduce maintenance and operating expenses, cut labor costs, insure accurate, uniform coverage with dependable Etnyre "Black-Toppers". Designed to do the job better . . . faster . . . cheaper. See your Etnyre dealer or write us today for complete details.

E. D. ETNYRE & Co., Oregon, Illinois

EQUIPMENT MEN and Their Companies



Three appointments to the executive staff of the Rockwell Manufacturing Co., Pittsburgh, have been announced: **C. A. Wiken** (left), for the past eight years chief engineer of the Delta manufacturing

division in Milwaukee, has been promoted to the position of vice-president in charge of engineering for Rockwell. **J. E. Ashman** has been named controller. **A. E. McIntyre**, who for the past several years has been manager of the Nordstrom valve division plant in Oakland, Calif., has been transferred to Pittsburgh as general manager of the company's Pittsburgh equitable meter division.

Thomas Robins, Jr., president of Hewitt-Robins, Inc. of Buffalo, N. Y., and **Lester H. Bittenheim**, president of McKiernan-Terry Corp. of Harrison, N. J., have just announced an agreement under which McKiernan-Terry acquires the key sales and engineering personnel, good will, drawings, jigs, fixtures and spare parts of Robins Conveyors' Mead Morrison Division. Under the agreement, the two companies will cooperate in carrying out important harbor facility projects involving bulk materials handling equipment problems.

Formation of Neff-Thomas Machinery, Inc., 1920 N. W. Miami Court, Miami, Fla., has been announced, succeeding P. A. Neff Machinery. The new firm has assumed all assets and facilities of P. A. Neff Machinery and will continue to operate at the same location with the same personnel, in the sale, rental and servicing of construction machinery. **A. W. Thomas** will act as vice-president and sales manager.

J. A. "Jack" Miller, prominent in construction equipment sales in Minnesota for more than 20 years, has joined the sales staff of the Koehring Co., Milwaukee, Wis. He will work with Koehring distributors in the North Central states.

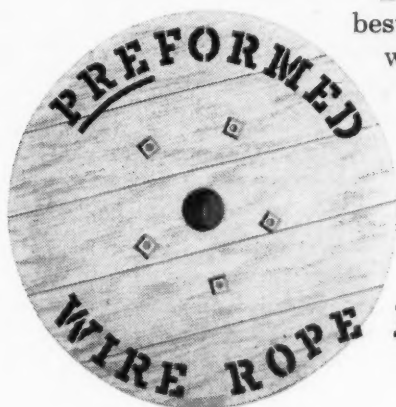


**This hot-ladle crane
cost more than \$100,000 . . . but as it is it couldn't work!**

You don't use this sort of equipment in construction, but it affords a splendid example of where false economy might be extremely costly.

This gigantic, 100-ton, ladle crane cost well over \$100,000—but it couldn't pour a drop of molten metal without wire rope. That's what's missing in this picture. How much does wire rope cost? Ordinary wire rope—about \$1500. The superior wire rope—Preformed Improved Plow Steel—about \$1800.

Be safe. Be sure. Don't let penny wisdom keep you from having the best. Specify Preformed of Improved Plow Steel for your next rope. And when you buy a machine—any machine—make certain it is equipped with Preformed. You will like it because it lasts longer. Your workmen will like it because it is easier and safer to handle.



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Address: Preformed Wire Rope Information Bureau,
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ASK YOUR OWN WIRE ROPE MANUFACTURER OR DISTRIBUTOR



HANDLES EASIER - LASTS LONGER

INVESTIGATE NOW!

Caine **CORR-PLATE**

Steel Piling



**STRONGEST
Per POUND WEIGHT**

Used the world over for building Foundations, Dams, Retaining Walls, Docks, Levees, Bulkheads, Sewers, Disposal Plants and thousands of other construction jobs.

CAINE STEEL COMPANY

STEEL PILING DIVISION

1820 N. Central Avenue

Chicago 39, Illinois

**The Man In the Crane
Prefers AN OWEN BUCKET**



Like the head on a hammer, the proper bucket on the crane assures maximum operating efficiency of the machine.

Crane operators prefer working with OWEN BUCKETS. For faster digging, discharge and ease of handling, Owen Buckets are unexcelled.

THE OWEN BUCKET CO.

6020 BREAKWATER AVE., CLEVELAND, OHIO

BRANCHES: New York, Philadelphia, Chicago, Berkeley, Calif.

A MOUTHFUL AT EVERY BITE

Western Steel Co., Corpus Christi, Tex., has been formed to serve as an agency for Truscon Steel Co. (Youngstown) in southern Texas. Firm will engineer, fabricate, and erect structural reinforcing, and miscellaneous steel. **C. V. Thornton** and **W. L. Thornton**, Ft. Worth, Tex., are president and secretary-treasurer, and **Harold T. Morton**, former assistant chief engineer of Truscon Steel Co. in Youngstown, is vice-president and general manager. A new \$500,000 industrial plant will be constructed.

Appointment of **Charles S. Hegel** (left) as manager of the stainless steel division, and **John W. Queen** (right) as manager of the alloy steel division of Joseph T. Ryerson & Son, Inc., steel distributors, has been announced. They are located at the Chicago plant of the company,

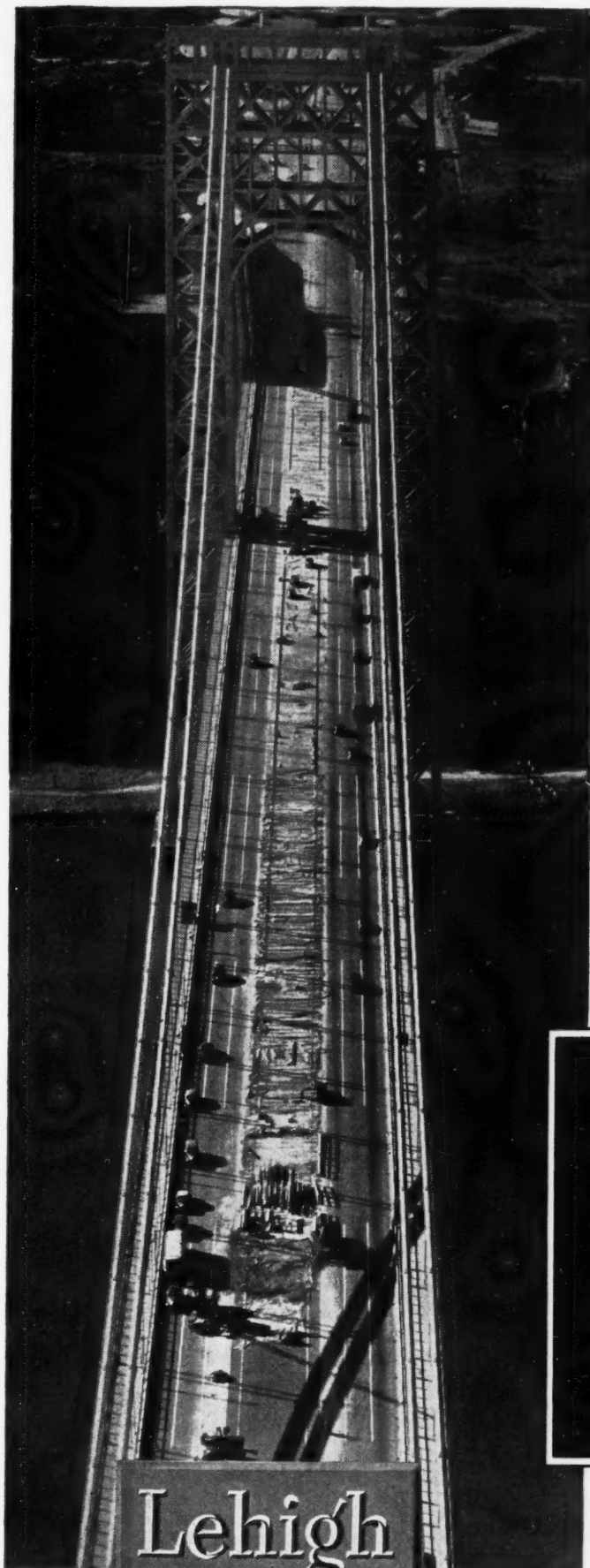


G. Van Dyke, former head of the Ryerson Special Steels Division, retired December 31 after 30 years' service with the organization. **Albert J. Bauer** has been made sales representative in the Rocky Mountain states, with headquarters in the Denver National Bldg., Denver, Colo. **E. F. Wood** has been assigned as manager of the work order department at the Los Angeles steel-service plant.

Hewitt Rubber division of Hewitt-Robins, Inc., has announced the appointment of the Hawaiian Equipment Co., Ltd., Honolulu, as distributor of the complete Hewitt line of industrial hose and belting throughout the Hawaiian Islands. The first supply house of its kind to be established on the Islands, the new company is directed by **W. P. Sheehan**, vice-president and general manager.

Purchase of the Woodhouse Chain Works, Trenton, N. J., by the Cleveland Chain & Manufacturing Co., Cleveland, has been announced. The Trenton plant will continue in full operation as the Woodhouse Chain Works Division of the Cleveland Chain & Manufacturing Co. **E. S. Washburn**, present plant manager, will remain in the same capacity under the new setup.

Poirier & McLane Corporation, 33 West 42nd Street,
New York City, for the Port of New York Authority.



Lehigh
CEMENTS

LEHIGH PORTLAND CEMENT COMPANY

*Somewhere
on nearly every job...*

**LEHIGH EARLY STRENGTH CEMENT
WILL SAVE TIME OR MONEY . . .**

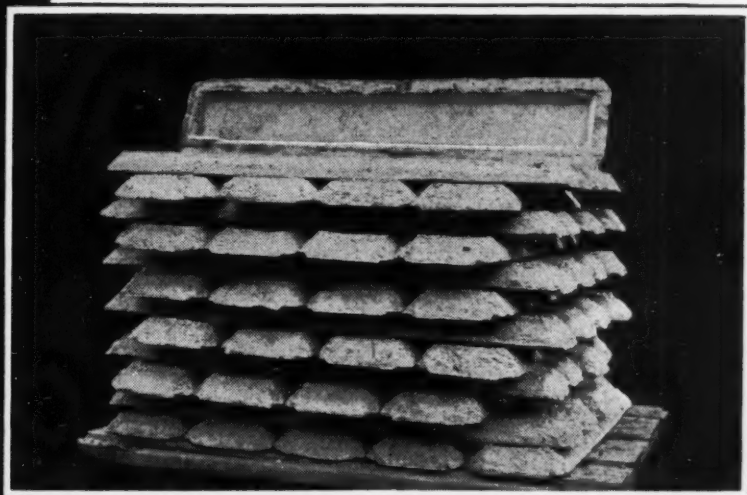
Of the several types of approved forms for the paving of the two center lanes of the George Washington Bridge, the Poirier & McLane Corporation, contractors, wisely selected pre-cast concrete.

This selection eliminated the expense of scaffolding for forming and stripping . . . the concrete forms were integrated with the concrete paving and remain a permanent part of the structure.

With Lehigh Early Strength Cement and 55 gang molds, it took only 40 days to complete 22,000 form units . . . saving the expense of at least 3 times the number of molds that otherwise would have been required. What's more, the use of fast-curing Lehigh Early Strength Cement assured the production necessary to keep paving operations moving on schedule.

That's why we say: somewhere on nearly every job Lehigh Early Strength Cement will save time or money. Let our Service Department consult with you on your specific problems.

These pre-cast form units became a permanent part of the concrete paving in which Lehigh Portland Cement was used.



LEHIGH EARLY STRENGTH CEMENT
• **LEHIGH MORTAR CEMENT** •
• **LEHIGH NORMAL CEMENT** •
LEHIGH AIR-ENTRAINING CEMENT

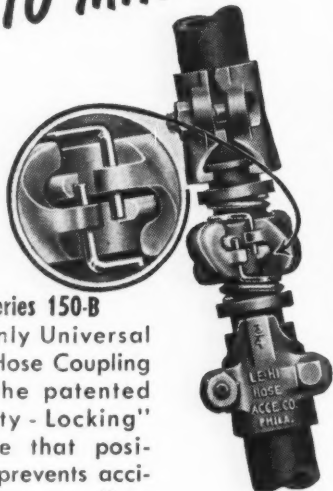
• ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

**WHEREVER
HOSE IS USED IN
CONSTRUCTION**



LE-HI Series 400
The ideal "all-purpose" coupling for heavy-duty, high-pressure service. For air, water, steam, etc. Extra heavy construction for maximum safety, efficiency and service life.

**THERE IS
A LE-HI
HOSE COUPLING
TO MATCH!**



LE-HI Series 150-B
The only Universal Type Hose Coupling with the patented "Safety-Locking" feature that positively prevents accidental uncoupling. Especially designed for compressed air service.

**LE-HI MAKES A
GOOD CONNECTION!**

Go to your local distributor for these rugged, economical LE-HI Hose Couplings—NEVER SOLD DIRECT!

HOSE ACCESSORIES CO.

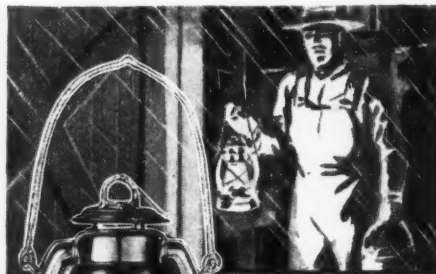
2738 N. 17th Street
Philadelphia 32, Pa.



Two new manufacturer's representatives for Dresser Manufacturing Division, Bradford, Pa., have been appointed for the Southeast. **Jack P. Orr**, Memphis, Tenn., will handle the distribution of Dresser pipeline products in Kentucky, western Tennessee, northern Mississippi, Arkansas and Missouri. **Preston S. Avery**, Atlanta, Ga., will cover North and South Carolina, Georgia, Florida, Alabama, Southern Mississippi and eastern Tennessee.

Sauerman Bros., Inc., Chicago, Ill., announces the appointment of **Martin Meyer** as assistant sales manager. Mr. Meyer has been engaged in both the sale and engineering of Sauerman scrapers and cableways for the last six years and previously was in railroad construction work.

Emery L. Cline and **Al G. Freudenburg** have been appointed district sales managers for the **J. D. Adams Manufacturing Co.** Mr. Cline will supervise Adams sales in Texas, Oklahoma, Louisiana, Arkansas, Kansas and Missouri, while Mr. Freudenburg will handle Virginia, West Virginia, Pennsylvania, Ohio, Kentucky and southern Indiana.



**EMBURY
AIR
PILOT
LANTERN**
ON EVERY JOB

It's Stormproof!

Order through Your Jobber
EMBURY MFG. CO., WARSAW, N. Y.



**MANAGEMENT and
PRODUCTION men want
FACTS**
about equipment they buy

Here are **FACTS** about
Coffing Hoists

"SAFETY-PULL"
Ratchet Lever Hoists



For all kinds of construction and maintenance work, wherever a lift or pull is needed, there is a "Safety-Pull" to meet your requirements. **SAFE, DURABLE, DEPENDABLE.** Capacities range from $\frac{3}{4}$ to 15 tons, yet they weigh only 14 to 150 pounds.

"QUIK-LIFT"
Electric Hoists

For dependable and economical service the "Quik-Lift" incorporates **EFFICIENCY** with **SPEED, POWER** and **DURABILITY.** Just plug it in and speed up production. Capacities from 500 to 4000 pounds with lifting speeds from 4 to 49 feet per minute.



MODEL Y-C
Spur Geared Chain Hoists



Coffing Spur Geared Chain Hoists embody the planetary gear system with the Weston automatic brake. There are seven capacities ranging from $\frac{1}{2}$ to 5 tons. A sturdy, dependable hoist for heavy work and in the production line.

Contact Your Supplier or Write for
BULLETIN D C-100

Coffing Hoist Co.
Danville, Illinois U. S. A.



THE DIFFERENCE IN
ATKINS
"Silver Steel"
BLADES

MEANS THE DIFFERENCE IN
Power Saw Performance

Speed . . . and more speed. That's the order of the day for every contractor. And it's an order you will meet much easier by equipping your portable power saws with Atkins "Silver Steel" Blades.

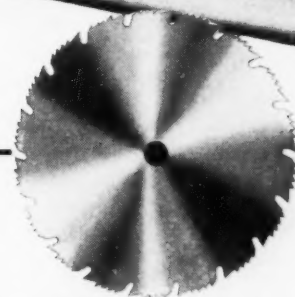
Rip, crosscut, mitre — whatever the job, a razor-keen Atkins Blade does it better. They stand up like work-horses under the roughest, toughest going. They perform like race horses on every cutting operation.

Put new life in your power saws by putting in Atkins Blades. It means straighter, cleaner cutting . . . cooler cutting in even the gummiest wood . . . longer cutting between blade changes.

Write for complete information today.

E. C. ATKINS AND COMPANY

Home Office and Factory: 402 S. Illinois St., Indianapolis 9, Ind. • Branch Factory: Portland, Oregon
BRANCH OFFICES: Atlanta • Chicago • Memphis
New Orleans • New York • San Francisco



Atkins No. 37 Mitre Tooth Saw, shown above, is a combination rip, crosscut and mitre saw — highly popular with users of portable machines. Pictured below are two of many other available tooth styles.



Rip tooth, for smooth high-speed ripping.



Crosscut tooth, for fast, easy crosscutting

NOTE: While Atkins does not manufacture portable machines, many leading machine manufacturers look to Atkins for blades.

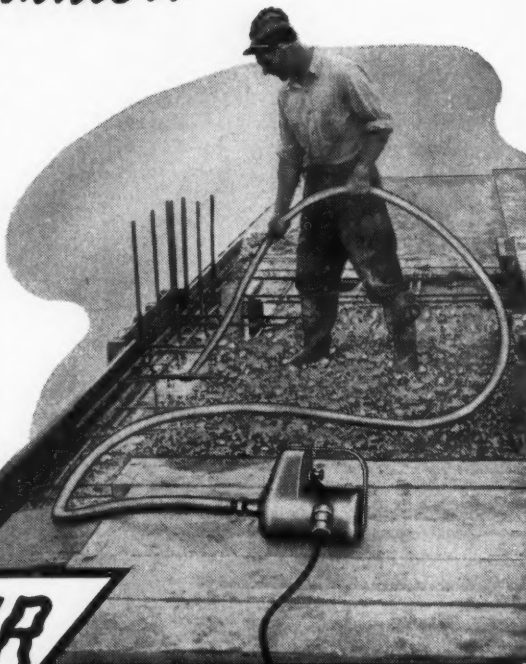



VIBER Concrete VIBRATORS

Easy to handle..

MAXIMUM COMPACTION

Viber Vibrators give you the unequalled high speed of 9500 r.p.m. in concrete. No other method of compaction gives you as completely consolidated, smooth surfaced concrete with such economy of time and cost. The Viber line includes units for every type of concrete work and the interchangeability of these units is a big advantage in obtaining top efficiency in workmanship with a minimum of equipment. Send for the new Viber catalog and learn why Vibers are used on so many of the major construction jobs throughout the world.





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726 SO. FLOWER STREET
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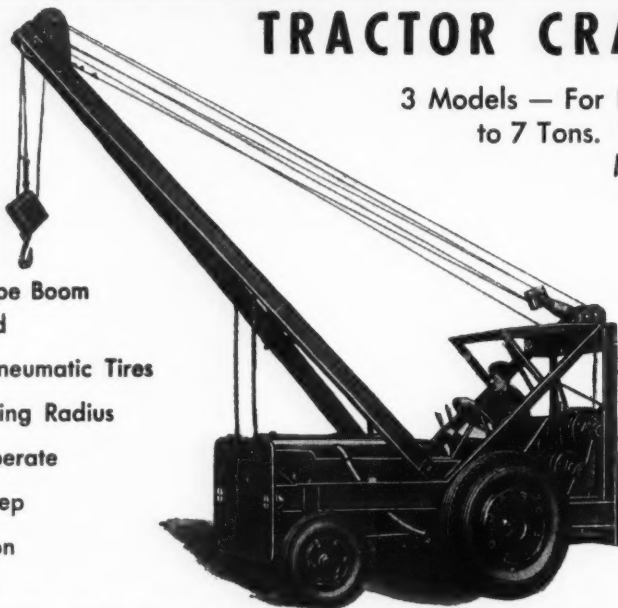
ORIGINATORS OF INTERNAL CONCRETE VIBRATION

MERCER

"The Name that Carries Weight"
MATERIAL HANDLING EQUIPMENT

TRACTOR CRANES

3 Models — For Loads Up to 7 Tons. Write for literature.



- Special Type Boom Designed
- Solid or Pneumatic Tires
- Short Turning Radius
- Easy to Operate
- Low Up-Keep
- Clear Vision
- Live Boom

MERCER ENGINEERING WORKS, INC.
Plant: Clifton, N. J.
SALES REPRESENTATIVE
MERCER-ROBINSON COMPANY, INC.
30 CHURCH ST., NEW YORK 7, N. Y.

Appointment of Harry B. Cummings as manager of the tar department of the Tar Products Division of Koppers Co., Inc., has been announced. His new duties will include direction of the production and sale of various tar products, including road and roofing materials, preservatives, pitches, acids, bases, naphthalene, oils, and other products. The tar department also handles the sales of the coated metal sheets produced by the Coated Products Department.

In a move intended to reflect better the expanded scope of the company's activities, Ladish Drop Forge Co., Cudahy, Wis., for over 40 years one of the largest producers of steel and alloy forgings for industry, has announced that the corporate name has been changed to Ladish Co.

The Clay Sewer Pipe Association, Inc., announces the addition to its technical staff of **L. O. Keener**, effective February 1. Mr. Keener formerly served as assistant superintendent of highways for Westmoreland County Commissioners and for a number of years was associated with the Pennsylvania Department of Highways as assistant maintenance supervisor. Mr. Keener will maintain headquarters at 307 Westminster Ave., Greenburg, Pa.



Austin K. Thomas has been appointed as sales manager of the construction machinery division, Chain Belt Co., Milwaukee, Wis. Mr. Thomas has a background of over 20 years' association with the construction machinery industry.

Preston M. Hall, an outstanding figure in the resistance welding industry, has accepted the position of technical executive of the Resistance Welder Manufacturers' Association.

Promotions of two officials of the Cummins Engine Co., Inc., Columbus, Ind., pioneer builder of high speed diesel engines, have been announced. **V. E. McMullen** is now executive vice-president and **R. E. Huthsteiner** is vice-president and general manager. The management simultaneously announced the appointments of **Leonard W. Beck** as general sales manager and **Waldo M. Harrison** as controller.

GUARANTEED



... to
outdig any
dragline
bucket
at any
depth!

**When properly used Page AUTOMATIC
Buckets will outdig ordinary buckets of comparable size.**

That's a guarantee you can easily prove for yourself by a competitive test. Compare the production of your present bucket with that of an AUTOMATIC. Hundreds of dragline operators in all kinds of digging have found that their AUTOMATIC buckets dig more yards at a lower cost per yard than any other dragline bucket they have ever used.

Here's why: Page AUTOMATICS dig right in at the first pull on the load line and get a full pay load within one to three bucket lengths regardless of the depth — 20 ft., 100 ft. or more. This means that most of your operations are under or near the end of the boom point where the minimum amount

of power is required for hoisting the load. Perfect balance of the AUTOMATIC assures perfect control whether loading or dumping. Quick loading features of AUTOMATIC buckets mean less wear and maintenance on the bucket, cables and the dragline as well as minimum operator fatigue. For more complete details, see your own construction equipment distributor or write for new booklet "How to Get the Most Out of Your Page Automatic Dragline Bucket."

PAGE ENGINEERING COMPANY
Clearing Post Office • Chicago 38, Illinois

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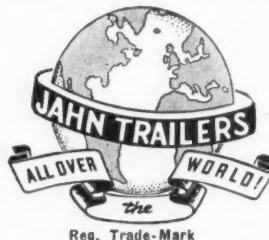
**DRAGLINE BUCKETS and
WALKING DRAGLINES**

SAFE FOR THE BIGGEST LOADS



Hauling contractors everywhere depend on Jahn Heavy-Duty Trailers for safe, fast and economical moving of their heaviest loads like this 110,000-lb. transformer. Deep, wide flange main beams run the full length of the trailer. Cross-members and outriggers are I-Beam sections. Improved, fabricated gooseneck adds greater built-in strength. Positive, self-equalized braking at each wheel regardless of position of axle assures maximum safety. See your nearest Jahn dealer for details.

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1335 W. 37th Place Chicago 9, Ill.
Heavy duty trailers from 5 to 100 tons.



Reg. Trade-Mark

CONTRACTORS RUBBER PRODUCTS

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CONVEYOR, ELEVATOR and TRANSMISSION BELTING

all widths and plys

V-BELTS all sizes

HOSE all sizes

AIR	WATER	SUCTION	COMPRESSOR
FUEL	STEAM	WELDING	PILE DRIVERS
FIRE	VACUUM	DISCHARGE	ROAD BUILDERS

and BOOTS, DREDGE SLEEVES, PUMP DIAPHRAGMS, ETC.

and everything rubber for Industrial Requirements

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CARLYLE RUBBER CO., Inc.

62-66 PARK PLACE NEW YORK 7, N. Y.

Phone: BArcley 7-9793

Dravo Corp., Pittsburgh, Pa., has announced the appointment of **D. R. Berg** as manager of the heating and combustion sections of the machinery division. The heating section manufactures and markets nationally the Dravo Counterflo oil or gas-fired heater for industrial and commercial use, and the combustion section furnishes and installs in western Pennsylvania, iron fireman stokers, Cleaver - Brooks boilers, Todd oil burners, Whirlflex fly-ash arrestors and other combustion equipment.

Appointment of Frederick C. Brandt as sales manager of the air conditioning controls division for the Minneapolis - Honeywell Regulator Co. in the southwestern region has been announced. He will make his headquarters in Houston at the company's regional office, 1309 Capitol Avenue.

Henry P. Reid, assistant to president, has been appointed chief engineer of the Universal Atlas Cement Co., United States Steel Corp. subsidiary. He has been associated with the company for 23 years.

The Barium Steel Corp. announces the acquisition of full control of the Bayonne Bolt Corp., Bayonne, N. J., one of the world's principal producers of bolts, nuts, rivets and similar steel products. The acquisition is in line with the Barium Steel policy of establishing a completely rounded-out, coordinated steel producing and manufacturing organization operating in varied branches of the steel industry. **Arthur D. Morris** will remain as president of the Bayonne Bolt Corp.

Consolidated Industries, Inc., manufacturers of automatic heating and low temperature freezing products, of Lafayette, Ind., has announced the appointment of **W. W. Timmis** as general sales manager.

Atlas Steel Construction Co. has changed its name to Concrete Forms Corp. The home office is at Irvington-on-Hudson, New York, with sales and engineering offices at 43 Cedar Street, New York City. The company specializes in steel plate and sheet metal fabrication, particularly steel forms for heavy concrete construction, such as tunnel forms, bridge piers, wall and flat slab forms, caissons, bins, steel centering, sewer, road and manhole forms.

No "OPERATOR'S FATIGUE" ON THIS PILE DRIVING JOB!

**"SPEED-O-MATIC"
CONTROLS ON**

**LINK-BELT
SPEEDER**

K-365

**MAKE HIGHWAY
BRIDGE JOB
EASY—FAST AND
PROFITABLE!**

Excavating 50,000 yards of earth in bridge and channel work, putting down wood or concrete piles is easy for this big K-365 Link-Belt Speeder, at work on an Illinois highway job. And it is easy for the man who handles it, too! Operator Evans, with 20 years' experience on various makes of shovels, is especially pleased with the easy handling of the "Speed-O-Matic" controls. "I no longer suffer from operator's fatigue," he says, and adds that the big machine is surprisingly easy to start on cold mornings.

For work with the 70 foot boom, the K-365 is using a high gantry, and because of local ground conditions, is equipped with wide crawler treads. When the job requirements change, the pile driver can give way to dragline bucket, or clamshell and the K-365 will perform just as easily and efficiently, just as economically and free from trouble, on any earth handling operation.



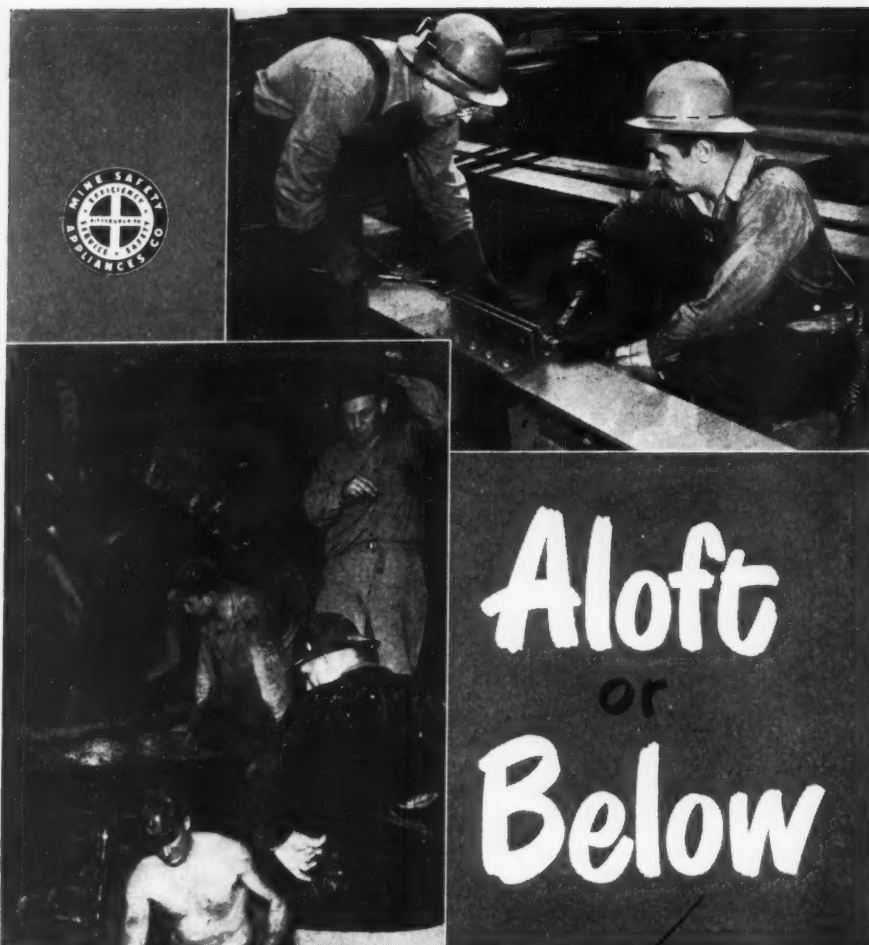
• In the Link-Belt Speeder line there is a size of machine to fit every requirement of the general construction industry—and every Link-Belt Speeder machine is quickly and easily convertible for use as shovel, crane, dragline, pile driver or trench-hoe. The broad range of sizes and multiple-use features enable the operator of a Link-Belt Speeder to do more work, more kinds of work, more of the time!

For Prompt, Efficient, Convenient Sales and Service:
There is a Link-Belt Speeder Distributor Located Near You

LINK-BELT SPEEDER

Builders of the Most Complete Line of
SHOVELS—CRANES—DRAGLINES

LINK-BELT SPEEDER CORPORATION, 301 W. PERSHING ROAD, CHICAGO 9, ILL.
A DIVISION OF LINK-BELT COMPANY



**Aloft
or
Below**

it's M·S·A

SKULLGARDS

for better Head Safety!

On every construction job where the danger of falling objects, obstructions or confined spaces expose heads to injury, M.S.A. Skullgards provide proved, dependable protection!

Used by the hundreds of thousands throughout the construction industry, these favorite work hats interpose the high fracture-resistant strength of high-pressure molded, laminated bakelite between danger and the worker's head—correctly designed with high crown for ample head clearance; shock-absorbing inner head cradle; flexible long-wearing sweatband; self-ventilation coolness.

M.S.A. Skullgards are non-deteriorating from exposure to water, perspiration, grease, or common chemicals, have a high dielectric strength, and are available in all standard or adjustable hat sizes. Write for details on these light-weight, easy to wear work hats—ask for Bulletin DK-13.

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets • Pittsburgh 8, Pa.

District Representatives in Principal Cities

In Canada: MINE SAFETY APPLIANCES COMPANY OF CANADA LIMITED, TORONTO

MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW, N. S.



W. A. Rundquist has been appointed sales promotion manager, for Pioneer Engineering Works, Inc., Minneapolis, Minn., to have charge of advertising, sales promotion, and sales training. The company manufactures heavy equipment for the quarry, gravel, mining, and paving industries.

Park Sanderson has been appointed manager of the Boston plant of Joseph T. Ryerson & Son, Inc., steel distributors, to succeed **Herbert D. Wills**, who is retiring. For the past 20 years Mr. Sanderson has been active in Ryerson service and management operations.

George Abbot Morison has relinquished his duties as vice-chairman of the board of Bucyrus-Erie Co., South Milwaukee, Wis., to make his home in New Hampshire. He will continue his connection with Bucyrus-Erie as a member of the executive committee of the board of directors.



Shunk
Superior Quality
BLADES
AND CUTTING EDGES

For any make of machine
Motor Graders, Maintainers, Scrapers, Drags, Bulldozers, Backfillers, Wagon Scrapers, Trail Builders, Trail Blazers, Carryalls, Also—

CUTTING EDGES
WEARING BOOTS
BACK SLOPERS
EXTENSION BLADES
MOLDBOARDS
and
SCARIFIER TEETH

50 years of manufacturing blades has developed for you a special steel, milled through our own rolls and forged at the edges to give that extra wearing quality you need.

All widths, lengths, and thicknesses, punched ready to fit your machine.

Consult your international recognized Blade Specialist. Write for special bulletins, giving type and name of machines you operate—get set for Blades early.

Shunk
MANUFACTURING
COMPANY
Established 1854
BUCYRUS, OHIO

Member of A.E.D.

The Nicholson Co., Inc., engineers and constructors of bulk storage structures, 10 Rockefeller Plaza, New York, has opened an office at 38 South Dearborn St., Chicago 3, Ill., to better serve its clients in the Middle West.

The United States Plywood Corp. is occupying its new Detroit branch office and warehouse on 6845 Dix Road near Vernor Highway. The new office and warehouse cover 40,000 sq. ft. on 2.3 acres of land.

John S. Gregg, manager of Inland Steel Co.'s Cincinnati sales office, has been transferred to the Milwaukee office as assistant district sales manager.

The E. L. Rahm Co., 720 South Michigan Blvd., Chicago, Ill., announces the opening of a new Chicago plant. This expansion increases the company's production of its Turesco waterproof masonry paint from 2,000 to 40,000 gal. per day, and of Turesco plasticizer from 500 to 2,000 gal. per day. A new product, Ex-Ten, a cream to make oil paint go twice as far, will also be manufactured.

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548 Indiana Street
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GRIFFIN WELLPOINT CORP.

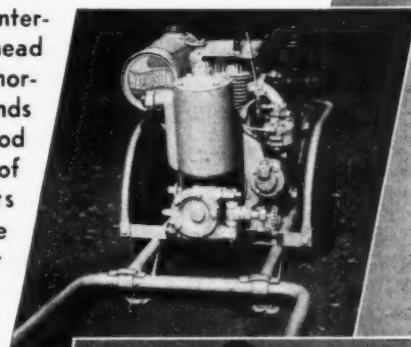
881 EAST 141st ST. • NEW YORK 54, N. Y.
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The JACKSON Hydraulic



THE INDEPENDENT CONCRETE VIBRATORY UNIT Contractors SWEAR BY (Never at)!

For downright reliability and trouble-free service, as well as the ability to do a perfect job of vibrating concrete on a wide range of construction, the JACKSON HYDRAULIC is tops. There are no troublesome parts to break, and as all moving parts run in oil there is no lubrication problem. Amplitude and frequency, the factors so important to proper vibration of concrete, have been correctly balanced with careful regard to the diameter of the vibrator head. Frequency is adjustable from 4000 to 7000 V.P.M. through throttle of the highly dependable 5 H.P. Wisconsin engine. 34 ft. flexible handle gives a satisfactory operating range for all jobs. Wheelbarrow mounting makes the entire assembly easily portable. An interchangeable grinding and drilling head is available and easily attached. Thoroughly proved in the hands of thousands of contractors, this machine has stood the test of time and represents one of the very best equipment investments any general contractor can make. Write for the complete facts or see your JACKSON distributor.



**FOR EACH AND EVERY
TYPE OF CONCRETE
CONSTRUCTION** the JACKSON line contains a vibrator that will give you the best possible job at the minimum of labor and maintenance cost — electric, engine-driven flexible shaft and Hydraulic models; internal and external types. Drop us a line for the best solution to any vibrating problem.



ELECTRIC TAMPER & EQUIPMENT CO.
LUDINGTON MICHIGAN



A high strength to weight ratio ($\frac{s}{w}$) is not only good engineering but has special advantages in tunneling work. ARMCO Tunnel Liner Plates are designed for utmost strength with the least possible weight.

This means that one unskilled workman can carry, hold and bolt into place an Armco liner section. Only a structural wrench is needed. Labor costs are low and the job goes fast. Less bulk also means less excavation, and storage requirements are smaller. With ARMCO Plates you buy no excess metal, and this keeps job costs down.

You'll find ARMCO Liner Plates the simplest, most inexpensive way you ever saw to install conduits, sewers and similar structures. You avoid the hazards and inconvenience of open trenching and business above ground continues as usual. Use ARMCO Tunnel Liner Plates on that next job to "hole through" ahead of schedule and under the estimate. Write for data. Armco Drainage & Metal Products, Inc., 1195 Curtis St., Middletown, Ohio. Offices in Principal Cities.



The Clay Sewer Pipe Association, Inc., announces the opening of an office at 117 W. Genesee Ave., Saginaw, Mich. C. J. Bauer, Jr., district engineer of the association, and its Michigan representative for the past six years, will maintain his headquarters at the new address.

Lima Locomotive Works, Inc., shovel and crane division, Lima, Ohio, announces the appointment of Interstate Equipment Co., Statesville, N. C. as sales agent for Lima shovels, cranes and draglines in North Carolina.

Link-Belt Speeder Corp., Chicago, announces that Hayes Parsons has been made assistant to the president and will have charge of the domestic sales of Link-Belt Speeder shovel-cranes. His headquarters will be at the Cedar Rapids, Iowa, plant.

John Harrod, assistant to the chief metallurgist of the Carnegie-Illinois Steel Co., Chicago, has been selected by the company as its representative for a three-month study and observation of steel industry practice in England, Norway and Sweden.

SYNTRON



100%
SELF-CONTAINED
GAS HAMMER
PAVING BREAKER

No Compressor
or Hose
No Battery Box
or Cable

Saves Money --- Saves Time

BUSTING Concrete — DIGGING Clay,
Shale and Frozen Ground — CUTTING
Asphalt — TAMPING Backfill — and
a host of other jobs.

Write for Illustrated Folder

SYNTRON CO.

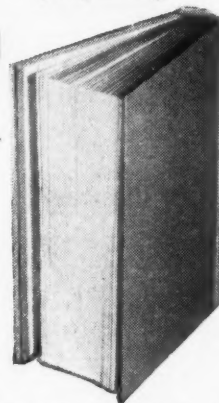
500 Lexington

Homer City, Pa.

Now! What you need to know about

—examining
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—preparing

engineering contracts



This book enables you to acquire a firm understanding of the legal details you should know for your own protection—shows you what to look for in contracts, and how to prepare them. It provides engineers and contractors with a sound, basic presentation of the legal principles applying to engineering contracts, and reduces a vast body of legal knowledge to the clearest essentials that demonstrate the law fundamental to a whole group of cases. The book supplies a complete discussion of the current application of standard contract practice, and modern contract forms.

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NEW 4th EDITION
includes the latest legislative and legal changes
—new forms of contracts
—legislation on renegotiation, termination and breach.

CONTRACTS IN ENGINEERING

The Interpretation and Writing of
Engineering-Commercial Agreements

By JAMES IRWIN TUCKER

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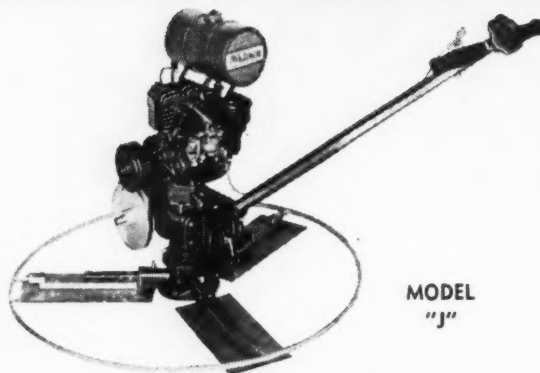
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The Permutit Co., manufacturers of water conditioning equipment, industrial ion exchangers and power plant specialties, has acquired the Simplex Valve and Meter Co. of Philadelphia, according to an announcement by **H. W. Foulds**, Permutit president. Mr. Foulds succeeds **W. H. Roth** as president of the newly-acquired subsidiary, while Mr. Roth becomes the Simplex board chairman. The Simplex Co., prominent in the design and manufacturing of equipment for the control and regulation of liquid flow, will continue to operate under its own name.

Appointment of W. R. Persons as sales manager of the Lincoln Electric Co., Cleveland, Ohio, has been announced. Mr. Persons has had a broad variety of sales experience with the company.



The shovel and crane division of Lima Locomotive Works, Inc., Lima, Ohio, has named **J. W. Artz** director of parts sales and service. Mr. Artz has been associated with the company since 1928. **Howard W. Read** has been appointed parts sales manager, with **William D. Lutes**, assistant parts sales manager. **T. A. Griffin** has been appointed service manager of the shovel and crane division.

R. G. LeTourneau, Inc., Peoria, Ill., announces the appointment of **Robert C. Judd** as market research manager to study applications of present equipment to present markets; analyze applications of present equipment to new markets; and study new markets for potential development of new products.


Recent appointments to positions in the wood preserving division of **Koppers Co., Inc.**, Pittsburgh, Pa., include **E. R. Snodgrass**, chief engineer and **D. A. Mitchell**, general superintendent of plants and operations.

K. V. Turner has been appointed assistant sales manager of **La-Plant-Choate Manufacturing Co., Inc.**, of Cedar Rapids, Iowa, according to a recent announcement from the company's headquarters.

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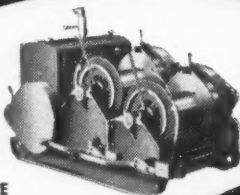
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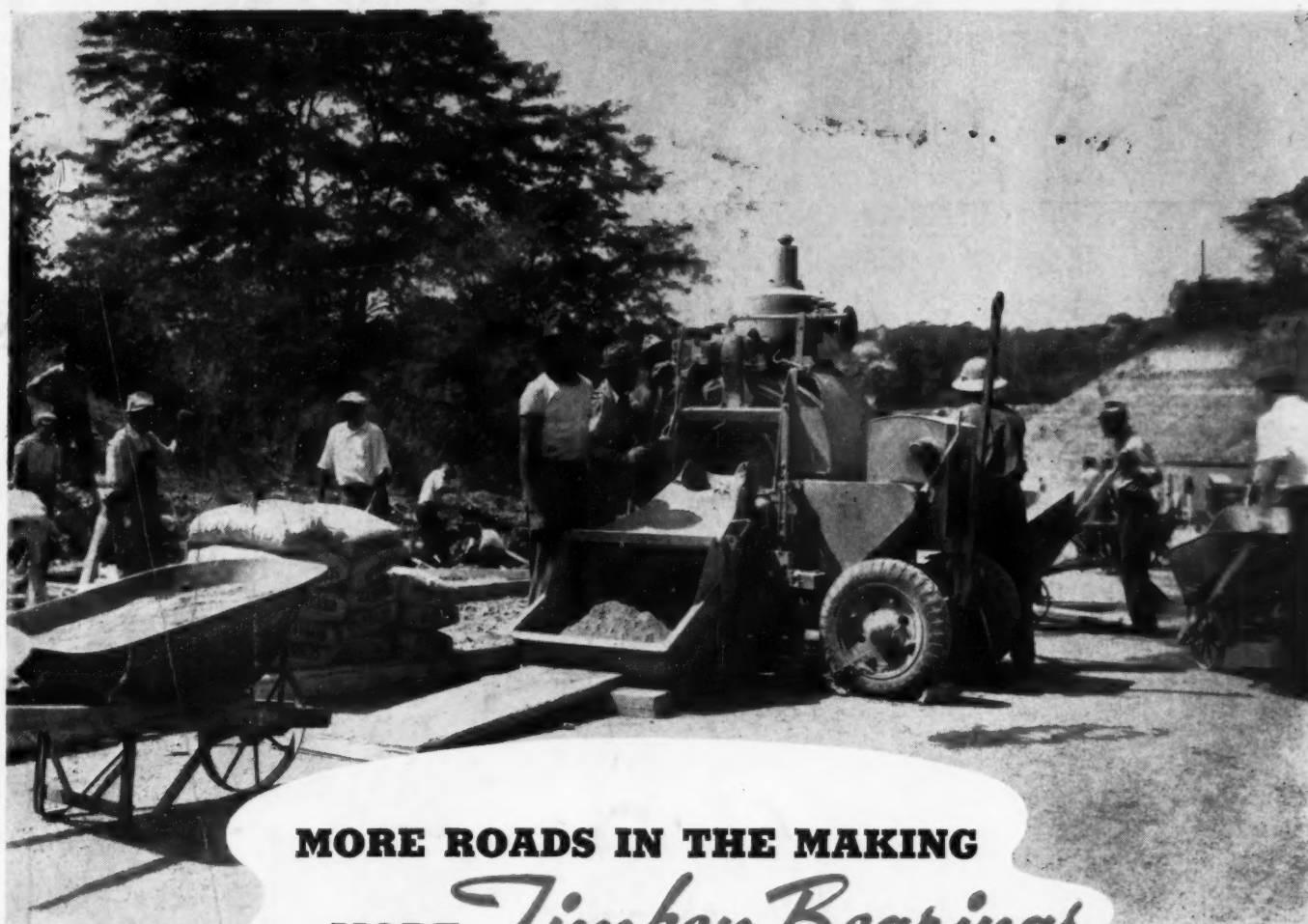
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